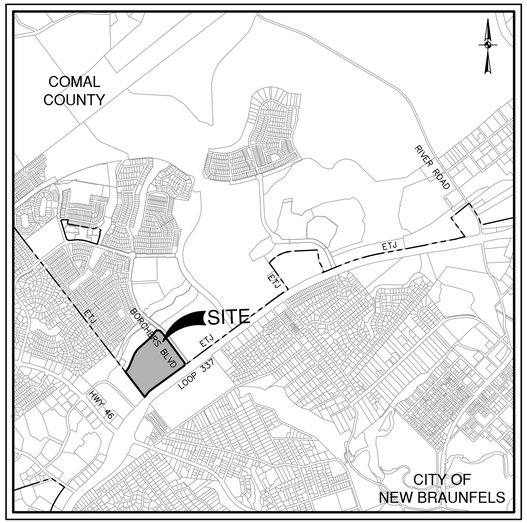
VERAMENDI PRECINCT 11A

NEW BRAUNFELS, TEXAS

CIVIL CONSTRUCTION PLANS

NBU NO. W-245133/WW-245134



LOCATION MAP
NOT-TO-SCALE

PREPARED FOR:

VERAMENDI PE-CAIRNS
2168 OAK RUN PKWY, SUITE 101
NEW BRAUNFELS, TX 78132

MAY 2024

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

2-14-2025
STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

NBU NOTES:

1. ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, NEW BRAUNFELS UTILITIES MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER OF RECORD.
2. THE ENGINEER OF RECORD ACKNOWLEDGES THAT ALL PROPOSED WATER OR WASTEWATER IMPROVEMENTS MUST COMPLY WITH CRITERIA FROM THE TEXAS COMMISSION ON ENVIRONMENTAL QUALITY, THE CITY OF NEW BRAUNFELS, NBU W&WW DESIGN CRITERIA, ANY OTHER GOVERNING ENTITY ORDINANCES OR CODES, AND SOUND ENGINEERING JUDGEMENT.
3. THE ENGINEER OF RECORD ACKNOWLEDGES THAT THE POINT OF DELIVERY FOR THE NBU WATER SYSTEM IS THE MAIN SIDE OF THE SERVICE/LATERAL/LEAD FROM THE CUSTOMER'S METER, BACKFLOW PREVENTER, OR EASEMENT EDGE. THE CUSTOMER IS RESPONSIBLE FOR THE DESIGN, PERMITTING, CONSTRUCTION, OPERATION AND MAINTENANCE BEYOND THE POINT OF DELIVERY AND HAS SOLE CONTROL AND SUPERVISION OVER THE IT'S INSTALLATION.
4. THE ENGINEER OF RECORD ACKNOWLEDGES THAT THE POINT OF DELIVERY FOR A NBU WASTEWATER SYSTEM IS THE MAIN SIDE OF THE SERVICE LATERAL FROM THE CUSTOMER'S CLEAN OUT OR PROPERTY LINE, WHICHEVER IS NEARER. THE CUSTOMER IS RESPONSIBLE FOR THE DESIGN, CONSTRUCTION, OPERATION AND MAINTENANCE BEYOND THE POINT OF DELIVERY AND HAS SOLE CONTROL AND SUPERVISION OVER ITS INSTALLATION.
5. WATER IS A PRECIOUS COMMODITY IN THE STATE OF TEXAS AND NEW BRAUNFELS UTILITIES (NBU) IS PASSIONATE ABOUT PROTECTING THE LOCAL RESOURCE. THE CONTRACTOR IS FULLY RESPONSIBLE FOR ACQUIRING A FIRE HYDRANT METER SO THAT ALL WATER USED FOR CONSTRUCTION OR TESTING PURPOSES IS PROPERLY ACCOUNTED FOR. NBU WILL NOT TOLERATE ANY WATER THEFT, REGARDLESS OF THE AMOUNT. IF WATER THEFT IS DISCOVERED, THE CONTRACTOR SHALL BE SUBJECT TO MONETARY PENALTIES, CRIMINAL CHARGES, AND STOPPAGE OF ALL CONSTRUCTION ACTIVITIES RELATED TO THE PROJECT. COSTS ASSOCIATED WITH ANY WORK STOPPAGE RESULTING FROM WATER THEFT SHALL BE AT THE FULL EXPENSE OF THE CONTRACTOR.

NBU AS-BUILT REQUIREMENTS:

NBU REQUIRES GPS POINTS FOR CERTAIN ELECTRIC, WATER AND WASTEWATER ATTRIBUTES, SOME OF WHICH MUST BE MEASURED PRIOR TO BACKFILL, DURING CONSTRUCTION.

GPS POINTS ARE REQUIRED FROM THE DEVELOPER'S CONTRACTOR OR ENGINEER. A MINIMUM OF THREE (3) COORDINATE POINTS FOR GEOREFERENCING ARE REQUIRED. THE WATER AND WASTEWATER GPS POINTS SHALL BE TO SURVEY GRADE AND ELECTRIC GPS POINTS SHALL BE MEASURED TO MAP GRADE. PLEASE REFERENCE NBU'S WATER CONNECTION POLICY FOR ADDITIONAL CAD DELIVERABLE REQUIREMENTS.

REQUIRED MEASUREMENTS FOR THE WATER SYSTEM INCLUDE:

1. VERTICAL BENDS AND EDGES OF STEEL CASINGS (IF APPLICABLE) PRIOR TO BACKFILL.
2. HORIZONTAL BENDS PRIOR TO BACKFILL.
3. TEES PRIOR TO BACKFILL.
4. FITTINGS (REDUCERS AND COUPLINGS) PRIOR TO BACKFILL.
5. FIRE HYDRANTS (TOP FLANGE).
6. VALVES.
7. METERS (TOP CENTER OF BOX).
8. BLOW OFF ASSEMBLIES.
9. CORNER SLAB OF ALL WATER TANKS AND THE ISOLATION GATE VALVE ON THE WATER TANK.

REQUIRED MEASUREMENTS FOR THE WASTEWATER SYSTEM INCLUDE:

1. MANHOLES.
2. CLEANOUTS.
3. CORNER SLAB OF ALL LIFT STATIONS.

REQUIRED MEASUREMENTS FOR THE ELECTRIC SYSTEM:

1. POLES.
2. TRANSFORMERS, BOTH ABOVE AND UNDERGROUND (FRONT LOCK).
3. PULL BOXES.
4. STREET LIGHTS.

COORDINATE GPS REQUIREMENTS WITH NBU INSPECTOR

NOTES:

- TYPE 3 DEVELOPMENT.
- ALL RESPONSIBILITY FOR THE ADEQUACY OF THESE PLANS REMAINS WITH THE ENGINEER OF RECORD. IN ACCEPTING THESE PLANS, THE CITY OF NEW BRAUNFELS MUST RELY UPON THE ADEQUACY OF THE WORK OF THE ENGINEER RECORD.
- IF CONSTRUCTION HAS NOT COMMENCED WITHIN ONE YEAR OF CITY APPROVAL FOR CONSTRUCTION INSPECTION, THAT APPROVAL IS NO LONGER VALID.
- THIS PROJECT IS WITHIN THE EDWARDS AQUIFER JURISDICTIONAL ZONES.
- NO PORTION OF THIS PROJECT IS WITHIN AN INDICATED SPECIAL FLOOD HAZARD ZONE ACCORDING TO THE FEMA FIRM MAP NO. 48091C0435F EFFECTIVE DATE 9/2/2009.
- GAS UTILITIES ARE NOT INCLUDED IN THE CIVIL CONSTRUCTION PLANS. FINAL GAS UTILITY DESIGN SHALL BE APPROVED BY THE CITY FOR ANY WORK WITHIN THE PUBLIC RIGHT-OF-WAY.
- FOLLOWING PERMITS ARE REQUIRED PRIOR TO START OF CONSTRUCTION:
  1. CITY OF NEW BRAUNFELS PUBLIC INFRASTRUCTURE PERMIT
  2. NEW BRAUNFELS UTILITY APPROVAL
  3. TCEQ WATER POLLUTION ABATEMENT PLAN APPROVAL
  4. TCEQ SEWAGE COLLECTION SYSTEM APPROVAL

LEGAL DESCRIPTION:

BEING 34.171 ACRES OF LAND, A PORTION OUT OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NUMBER 20160606009473, AND A PORTION OUT OF THE 255.715 ACRE TRACT DESCRIBED IN DOCUMENT NUMBER 201706013192, BOTH IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS, IN THE JUAN MARTIN DE VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.

SHEET INDEX

SHEET C0.00

PD JOB NO. 30001-81 VERAMENDI PRECINCT 11A

Date: April 11, 2024, 11:49 AM — User ID: hhenke
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CONSTRUCTION PLAN NOTES

Revised 03/2020

These notes must appear on the cover and/or "notes" sheet of all subdivision construction plans and on commercial plans where applicable:

If construction has not commenced within one-year of City approval for construction inspection, that approval is no longer valid.

The most current editions of the City of San Antonio Standard Specifications and the Texas Department of Transportation Standard Specifications for Construction of Highways, Streets and Bridges shall be followed for all construction except as amended by the City of New Braunfels Standard Details.

All responsibility for the adequacy of these plans remains with the engineer of record. In accepting these plans, the City of New Braunfels must rely upon the adequacy of the work of the engineer of record.

Prior to the start of construction, the contractor shall contact the City of New Braunfels to schedule a preconstruction meeting.

For Public Infrastructure Permit or Grading Permit Projects:

- For inspections, you must call before 12:00 p.m., 48 hours prior to your inspection request.
- Each inspection will be allotted 1 hour unless you request for more time.
- Once your request has been accepted, you will receive a call from the City of New Braunfels Inspector.

For Commercial Permit **(CP)** Projects:

- All inspections are to be called in at 830-221-4068 or,
- Faxed in at 830-608-2117 or,
- E-mailed at inspections@nbtexas.org.

It is the Contractor's responsibility to see that all temporary and permanent traffic control devices are properly installed and maintained in accordance with the plans and latest edition of the Texas Manual on Uniform Traffic Control Devices. If, in the opinion of the engineering representative and the construction inspector, the barricades and signs do not conform to established standards or are incorrectly placed or are insufficient in quantity to protect the general public, the construction inspector shall have the option to stop operations until such time as the conditions are corrected. If the need arises, additional temporary traffic control devices may be ordered by the Engineering representative at the Contractor's expense.

A TxDOT Type II B-B blue reflective raised pavement marker shall be installed in the center of the roadway adjacent to all fire hydrants. In locations where hydrants are situated on corners, blue reflective raised pavement markers shall be installed on both approaches which front the hydrant. The raised pavement marker shall meet TxDOT material, epoxy and adhesive specifications.

Groundwater
It shall be the responsibility of the developer, contractor, subcontractors, builders, Geo-technical engineer, and project engineer to immediately notify the Office of the City Engineer and project engineer if the presence of groundwater within the site is evident. Upon notification the project engineer shall respond with plan revisions for the mitigation of the groundwater issue. The City Engineer shall respond within two (2) business days upon receipt of the mitigation plan. All construction activity, impacted by the discovery of groundwater, shall be suspended until the City Engineer grants a written approval of the groundwater mitigation plan.

Record Drawings
As per Platting Ordinance Section 118-38m.: When all of the improvements are found to be constructed and completed in accordance with the approved plans and specifications and with the City's standards, and upon receipt of one set of "Record Drawing" plans, and a digital copy of all plans (PDF copy) the City Engineer shall accept such improvements for the City of New Braunfels, subject to the guaranty of material and workmanship provisions in this Section.

Construction Note
Contractor is responsible to ensure that erosion control measures and stormwater control sufficient to mitigate off site impacts are in place at all stages of construction.

Drainage Note
Drainage improvements sufficient to mitigate the impact of construction shall be installed prior to adding impervious cover.

Finished Floor Elevations
The elevation of the lowest floor shall be at least 10 inches above the finished grade of the surrounding ground, which shall be sloped in a fashion so as to direct stormwater away from the structure. Properties adjacent to stormwater conveyance structures must have floor slab elevation or bottom of floor joists a minimum of one foot above the 100-year water flow elevation in the structure. Driveways serving houses on the downhill side of the street shall have a properly sized cross swale preventing runoff from entering the garage.

Soils Testing
Proctors shall be sampled from on-site material (on-site is defined as limits of construction for this -plan set) and a copy of the proctor results shall be delivered to the City of New Braunfels Street Inspector prior to any density tests.

Roadway
All roadway compaction tests shall be the responsibility of the developer's Geotechnical Engineer. Flexible base or fill/embankment material shall be placed in uniform layers not to exceed eight inches (8") loose. The required density for the fill/embankment material shall meet the requirements of TxDOT's Specification Item 132. The required density for the flexible base material shall meet the requirements of TxDOT's Specification Item 247. Each layer of material, inclusive of subgrade, shall be compacted as specified and tested for density and moisture in accordance with Test Methods TEX-113-E, TEX-114-E, TEX-115-E. The number and location of required tests shall be determined by the Geotechnical Engineer and approved by the City of New Braunfels Street Inspector. At a minimum, tests shall be taken every 200 LF for each lift. Upon completion of testing, the Geotechnical Engineer will provide the City of New Braunfels Street Inspector with all testing documentation and a certification stating that the placement of flexible base, and fill material, and subgrade, has been completed in accordance with the plans. Additional density tests may be requested by the City of New Braunfels Inspector.

Item 340
Asphaltic concrete pavement shall be the type of hot mix asphalt as defined in TxDOT's standard specifications for current TxDOT Standard Specifications for Construction of Highways, Street and Bridges.

The City of New Braunfels will not accept the use of Recycled Asphalt Pavement (RAP) or Recycled Asphalt Shingles (RAS) in asphalt mixtures for new roadways. Any debris inclusions within new asphalt pavements will result in asphalt removal and replacement from curb to curb for limits to be determined by the City of New Braunfels.

The asphaltic concrete pavement surface course shall be plant mixed, hot laid type "D" meeting the specification requirements of TxDOT Item 340. The asphaltic concrete pavement sub-surface courses shall be plant mixed, hot laid type "B" meeting the specification requirements of TxDOT Item 340. The mixture shall be designed per the design requirements specified in TxDOT Item 340 and shall be compacted to between 91 and 95 percent of the maximum theoretical density as determined by TxDOT test method TEX-227-F. Place the mixture when the roadway surface temperature is at or above 60°F. Complete all compaction operations before the pavement temperature drops below 160°F. The asphalt cement content by percent of total mixture weight shall fall within a tolerance of ±0.5 percent from a specific mix design.

Utility Trench Compaction (added to the construction plans on All Utility Plan Sheets).
All utility trench compaction tests within the street pavement/sidewalk section shall be the responsibility of the developer's Geotechnical Engineer. Fill material shall be placed in uniform layers not to exceed twelve inches (12") loose. Determine the maximum lift thickness based on the ability of the compacting operation and equipment used to meet the required density. Each layer of material shall be compacted to a minimum 95% density and tested for density and moisture in accordance with Test Methods TEX-113-E, TEX-114-E, TEX-115-E. The number and location of required tests shall be determined by the Geotechnical Engineer and approved by the City of New Braunfels Street Inspector. At a minimum, tests shall be taken every 200 LF for each lift and every other service line. Upon completion of testing the Geotechnical Engineer shall provide the City of New Braunfels Street Inspector with all testing documentation and a certification stating that the placement of fill material has been completed in accordance with the plans. Additional density tests may be requested by the City of New Braunfels Inspector.

Curb Cut Due to Construction of New Right-Of-Way Construction
(Indicate the 2 Options on the construction plans).
1. Sawcut existing street and match to new construction.
2. Sawcut existing curb to tie into existing construction.

Construction Stabilized Entrance
Sawcut curb for construction entrance.

Stabilized construction area shall be constructed of 3"x5" rock to be placed a minimum length of 25-ft. and maintained so that construction debris does not fall within the city right-of-way. Right-of-way must be cleared from mud, rocks, etc. at all times.

(Notes to Be Placed on All WW Plan & Detail Sheets)
Ensure all driveway approaches are built in general accordance with A.D.A. specifications.

No valves, hydrants, etc. shall be constructed within curbs, sidewalks, or driveways.

Signing and Pavement Marking Plan Notes
The Contractor shall furnish and install all regulatory and warning signs, streets name signs and sign mounts in accordance with approved engineering plans. The City will inspect all signs at final inspection.

The Contractor shall install all pavement markings in accordance with approved engineering plans. The Contractor shall notify the City at least twenty-four (24 hours prior to the installation of all sealer and final markings. The City will inspect all markings at final application.

Seeding and Establishment of Vegetation within Earthen Channels, Stormwater Basins and Disturbed Areas
Seeding for the purpose of establishing vegetation within constructed earthen channels, basins and disturbed areas shall be conducted in accordance with Item 164 (Seeding for Erosion Control of TxDOT's Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges manual. Only seed types and mixes specified for the San Antonio District (District 15 in Tables 1 and 2 under Item 164 shall be utilized. During the Cool Season (Sept 1-Nov 30, Cereal Rye and seed species specified for the San Antonio District in Table 3 may be used. For Cool Season seeding applications, cool season seed mixes shall be used in conjunction with seed mixes for the San Antonio District as specified in Table 1 and 2 under Item 164.

It may be deemed necessary to incorporate topsoil and soil amendments (i.e. compost/ fertilizer into existing soil in order to facilitate vegetation growth. Topsoil, compost and fertilizer additions shall be conducted according to Items 160, 161 and 166 of TxDOT's Standard Specifications manual, respectively.

Areas requiring permanent vegetation (earthen channels, ponds, etc.) are required to meet TxDOT Specifications for Item 160 Topsoil. Testing per Tex-128-E will be required at the City's request.

Watering may also be necessary to facilitate and expedite the sprouting and growth of vegetation. Item 168 of TxDOT's Standard Specifications manual shall be adhered to for vegetative watering.

If extended drought conditions exist that hinder or prohibit the growth and establishment of vegetation, the contractor/ developer shall provide a plan to the City of New Braunfels describing the measures that will be taken to stabilize earthen drainage infrastructure until a time when growing conditions become more favorable.

CHANNEL MAINTENANCE PLAN

The following are guidelines for the overall maintenance of the channel system and drainage easement by the designated maintenance entity as defined by the executed drainage agreement. The designated maintenance entity will be responsible for the operation, maintenance, and repair of the system and easement to ensure that it operates as designed.

- *Inspections*. The channel should be inspected to assure proper operation at least 4 times annually. One of these inspections should occur during or immediately following wet weather.

- *Mowing*. The side slopes and bottom of the channel that are covered with grass must be mowed regularly to discourage woody growth and control weeds. Grass areas in and around the channel must be mowed at least four times annually to limit vegetation height to 12 inches. More frequent mowing to maintain aesthetic appeal may be necessary in landscaped areas. When mowing is performed, a mulching mower should be used, or grass clippings should be caught and removed. Vegetation shall be maintained so as to match the intent of the original design of the channel and preserve the flow conveyance capacity. Any woody vegetation which becomes established shall be periodically removed or mulched to ground level. Any removal of brush which results in disturbance of established grades shall be repaired/re-graded and revegetated.

- *Debris, Litter, and Obstruction Removal*. Debris and litter may accumulate in the channel and/or near the drop structure and outfall and should be removed during regular mowing operations and inspections or after large rainfall events. Any other obstructions that impede flow as intended by the original design shall be removed in a timely manner.

- *Erosion Control*. The channel side slopes and embankment may periodically suffer from slumping and erosion. Regrading and re-establishment of vegetation may be required to correct the problems. Vegetation should be re-established to the original design standards. Inspection of sediment deposits along the length of the channel should occur during the stated intervals. All sediment deposits exceeding 12" in depth or which are preventing positive drainage should be removed from the channel at least once annually. All sediment should be removed and disposed of properly.

DRAINAGE MAINTENANCE PLAN

The storm drain pipe shall be checked for accumulation of silt, debris or other obstructions which could block flow. When silt deposits have accumulated to the point of reducing the drain capacity then the pipes can be flushed with a high-pressure water flushing process. Soil accumulations, vegetative overgrowth and other blockages should be cleared from the pipe discharge point. Erosion at the point of discharge shall be monitored. If erosion occurs, the addition of rock rubble to disperse the flow should be accomplished.

PROPOSED CONSTRUCTION SEQUENCE

1. INSTALL TEMPORARY STORMWATER EROSION CONTROL MEASURES IN AFFECTED CONSTRUCTION AREAS AND STABILIZED CONSTRUCTION ENTRANCES/EXITS.
2. INSTALL TREE PRESERVATION MEASURES, IF REQUIRED.
3. CONSTRUCT DRAINAGE.
4. CONSTRUCT WASTEWATER SYSTEM.
5. CONSTRUCT WATER SYSTEM.
6. ESTABLISH SITE STABILIZATION.
7. REMOVE ALL TEMPORARY STORMWATER EROSION CONTROL MEASURES.

NOTES

1. SOME ITEMS ABOVE WILL OCCUR SIMULTANEOUSLY OR MAY OCCUR OUT OF SEQUENCE INDICATED.
2. ALL SEQUENCES SUBJECT TO CHANGE.

NO.	REVISION	DATE

8-6-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM # 470 | TEXAS SURVEYING FIRM # 100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

CONSTRUCTION NOTES

PLAT NO.
JOB NO. 30001-81
DATE AUGUST 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C0.01

Date: March 13, 2024, 3:55 PM - User ID: ckowalski
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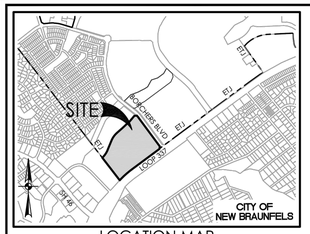


LOCATION MAP
NOT-TO-SCALE

NBU NOTES:
1. MAINTENANCE OF DEDICATED UTILITY EASEMENTS IS THE RESPONSIBILITY OF THE PROPERTY OWNER. ANY USE OF AN EASEMENT, OR ANY PORTION OF IT, INCLUDING LANDSCAPING OF DRAINAGE FEATURES, IS SUBJECT TO AND SHALL NOT CONFLICT WITH THE TERMS AND CONDITIONS IN THE EASEMENT. MUST NOT ENDANGER OR INTERFERE WITH THE RIGHTS GRANTED BY THE EASEMENT TO NEW BRAUNFELS UTILITIES, ITS SUCCESSORS AND ASSIGNS, AND SHALL BE SUBJECT TO APPLICABLE PERMIT REQUIREMENTS OF THE CITY OF NEW BRAUNFELS OR ANY OTHER GOVERNING BODY. THE PROPERTY OWNER MUST OBTAIN, IN ADVANCE, WRITTEN AGREEMENT WITH THE UTILITIES TO UTILIZE THE EASEMENT, OR ANY PART OF IT.
2. UTILITIES WILL POSSESS A 5' WIDE SERVICE EASEMENT TO THE BUILDING STRUCTURE ALONG THE SERVICE LINE TO THE SERVICE ENTRANCE. THIS EASEMENT WILL VARY DEPENDING UPON LOCATION OF DWELLING AND SERVICE.
3. UTILITIES SHALL HAVE ACCESS TO THE METER LOCATIONS FROM THE FRONT YARD AND METER LOCATIONS SHALL NOT BE LOCATED WITHIN A FENCED AREA.
4. EACH LOT MUST HAVE ITS OWN WATER AND SEWER SERVICE AT THE OWNER/DEVELOPERS EXPENSE.
5. DO NOT COMBINE ANY NEW UTILITY EASEMENTS (UE) WITH DRAINAGE EASEMENTS (DE) OR MAKE CHANGES IN GRADE WITHIN THE UTILITY EASEMENTS, OR ANY PART OF IT.
6. NBU IS NOT RESPONSIBLE FOR LANDSCAPING OR IRRIGATION IN UE/LE.

FLOOD ZONE NOTE:
NO PORTION OF THE SUBDIVISION IS LOCATED WITHIN ANY SPECIAL FLOOD HAZARD AREA (100 YR. FLOOD), AS DEFINED BY THE COMAL COUNTY, TEXAS, FLOOD INSURANCE RATE MAP NO. 48091C0435F EFFECTIVE DATE 9/2/2009 AS PREPARED BY THE FEDERAL EMERGENCY MANAGEMENT AGENCY.

UTILITY PROVIDER NOTE:
THE PROPERTY WILL BE SERVED BY THE FOLLOWING:
NEW BRAUNFELS UTILITIES (WATER, SEWER, ELECTRIC)
AT&T (TELECOMMUNICATIONS)
SPECTRUM (TELECOMMUNICATIONS)

DRAINAGE EASEMENT NOTES:
1. DRAINAGE EASEMENTS SHALL "REMAIN FREE OF ALL OBSTRUCTIONS."
2. MAINTENANCE OF DRAINAGE EASEMENT SHOWN OUTSIDE OF LOT LINES SHALL BE THE RESPONSIBILITY OF THE PROPERTY OWNERS, OR THE PROPERTY OWNER'S ASSOCIATION, OR ITS SUCCESSORS OR ASSIGNS AND NOT THE RESPONSIBILITY OF THE CITY OF NEW BRAUNFELS OR COMAL COUNTY.
3. NO STRUCTURES, WALLS OR OTHER OBSTRUCTIONS OF ANY KIND SHALL BE PLACED WITHIN THE LIMITS OF DRAINAGE EASEMENTS SHOWN ON THIS PLAT. NO LANDSCAPING, FENCES, OR OTHER TYPE OF MODIFICATIONS WHICH ALTER THE CROSS SECTIONS OF THE DRAINAGE EASEMENTS OR DECREASES THE HYDRAULIC CAPACITY OF THE EASEMENT, AS APPROVED, SHALL BE ALLOWED WITHOUT THE APPROVAL OF THE CITY ENGINEER. THE CITY OF NEW BRAUNFELS AND COMAL COUNTY SHALL HAVE THE RIGHT OF INGRESS AND EGRESS OVER GRANTORS ADJACENT PROPERTY TO REMOVE ANY OBSTRUCTIONS PLACED WITHIN THE LIMITS OF SAID DRAINAGE EASEMENTS AND TO MAKE ANY MODIFICATIONS OR IMPROVEMENTS WITHIN SAID DRAINAGE EASEMENTS.

SIDEWALK AND ACCESS WAY NOTES:
SIX (6) FOOT WIDE SIDEWALKS WILL BE CONSTRUCTED BY SITE BUILDER PER CITY STANDARDS AT THE TIME OF BUILDING CONSTRUCTION ALONG BORCHERS BLVD

SUBDIVISION PLAT OF VERAMENDI PRECINCT 11A

BEING 34.171 ACRES OF LAND, A PORTION OUT OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201606060974?3, AND A PORTION OUT OF THE 255.715 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201706013192, BOTH IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY TEXAS, IN THE JUAN MARTIN DE VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.

PLAT NOTES:
1. THIS PLAT IS SUBJECT TO THE REQUIREMENTS AND REGULATIONS OF THE VERAMENDI DEVELOPMENT COMPANY DEVELOPMENT AGREEMENT, RECORDED AS DOCUMENT NO. 201506029547 AND AS AMENDED.
2. THIS PLAT IS LOCATED WITHIN THE LARGE FORMAT RETAIL PLANNING SUB AREA.
3. STANDARDS FOR PLANT MATERIALS SHALL CONFORM TO THE STANDARDS OF THE LATEST EDITION OF THE AMERICAN NATIONAL STANDARD *A300 PLANTING AND TRANSPLANTING NURSERY STOCK* PUBLISHED BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. TREE REPLACEMENT SHALL OCCUR WITHIN 12 MONTHS OF REMOVAL OF THE HIGH VALUE TREE UNLESS DEFERRED TO AN ADJACENT UNIT. WHERE A REPLACEMENT TREE DOES NOT SURVIVE FOR A PERIOD OF AT LEAST 24 MONTHS, THE ORIGINAL APPLICANT OR CURRENT LANDOWNER SHALL REPLACE THE TREE, PREFERABLY DURING OCTOBER - FEBRUARY, UNTIL THE TREE SURVIVES A 12-MONTH PERIOD.
5. SHOULD ANY TREE DESIGNATED FOR RETENTION IN AN APPROVED TREE PROTECTION PLAN DIE PRIOR TO, OR WITHIN 12 MONTHS OF THE COMPLETION OF CONSTRUCTION WORKS, THE APPLICANT SHALL REPLACE THE DEAD TREE WITH A REPLACEMENT TREE/S EQUAL TO THE TOTAL CALIPER INCHES OF THE DEAD TREE. NO GRADING, TRENCHING OR EQUIPMENT SHALL BE CONDUCTED IN THE AREA IDENTIFIED IN THE ROOT PROTECTION ZONE. ALL WORK TO BE PERFORMED BY HAND OR UNDER THE SUPERVISION OF A CERTIFIED ARBORIST.
6. DURING CONSTRUCTION, THE CLEANING OF EQUIPMENT OR MATERIALS AND/OR THE DISPOSAL OF ANY WASTE MATERIAL, INCLUDING, BUT NOT LIMITED TO PAINT, OIL, SOLVENTS, ASPHALT, CONCRETE, MORTAR, ETC., UNDER THE CANOPY OR DRIP LINE OF ANY HIGH VALUE TREE SHALL BE PROHIBITED. NO GRADING, TRENCHING OR EQUIPMENT SHALL BE CONDUCTED OR USED IN THE AREA IDENTIFIED IN THE ROOT PROTECTION ZONE. ALL WORK SHALL BE PERFORMED BY HAND OR UNDER THE SUPERVISION OF A CERTIFIED ARBORIST. NO ATTACHMENTS OR WIRES OF ANY KIND, OTHER THAN THOSE OF A PROTECTIVE NATURE, SHALL BE ATTACHED TO ANY HIGH VALUE TREE.
7. LOTS TO BE HELD IN COMMON PROPERTY BY A HOMEOWNERS' OR PROPERTY OWNERS' ASSOCIATION SHALL BE SHOWN ON THE PLAT AS A SEPARATE LOT.
8. NO BUILDING SHALL BE SITED WITHIN THE EXTENT OF A SENSITIVE FEATURE AND ASSOCIATED BUFFER, FOR ANY LOT WHICH CONTAINS A HIGH VALUE TREE, AND A BUILDING ENVELOPE WAS NOT APPROVED AS PART OF A FINAL PLAT. THE LOCATION OF A BUILDING ENVELOPE SHALL BE APPROVED BY THE PLANNING DIRECTOR PRIOR TO A BUILDING PERMIT BEING ISSUED.
9. FUTURE DEVELOPMENT IS SUBJECT TO CHAPTER 114 (STREETS, SIDEWALKS AND OTHER PUBLIC SPACES) OF THE NEW BRAUNFELS CODE OF ORDINANCES.
10. IMPERVIOUS COVER THE MAXIMUM CUMULATIVE IMPERVIOUS COVER PERCENTAGE FOR THE PROPERTY AS A WHOLE AND FOR EACH SECTOR PLAN SHALL NOT EXCEED SIXTY-FIVE PERCENT (65%).
11. AMENDMENTS TO THE PARK PROGRAMMING SCHEDULE, INCLUDING BUT NOT LIMITED TO THE PROVISION OF ADDITIONAL IMPROVEMENTS OR SUBSTITUTING IMPROVEMENTS, SHALL BE ADMINISTRATIVELY APPROVED BY THE PARKS DIRECTOR.
12. THIS PLAT WILL COMPLY WITH LOCATION AND AMENITY STANDARDS FOR TRAILS AS SHOWN IN THE SECTOR PLAN.
13. TOTAL NUMBER OF LOTS = 9.
14. ROADS, FACILITIES, STRUCTURES AND IMPROVEMENTS SUCH AS SIDEWALKS, PATHS, TRAILS, TRAILHEADS, PARK IDENTIFICATION AND WAY FINDING SIGNAGE, SEATING, PICNIC TABLES, DRINKING FOUNTAINS, PET DRINKING FOUNTAINS, TRASH RECEPTACLES, PET WASTE RECEPTACLES, SHADE STRUCTURES, OUTLOOKS, RETAINING WALL, PUBLIC UTILITIES, STORMWATER MANAGEMENT FACILITIES, WATER QUALITY MEASURES AND SIGNAGE ARE PERMITTED WITHIN THE GREEN RIBBON. ALL OTHER DEVELOPMENT SHALL BE PROHIBITED WITHIN THE GREEN RIBBON.

CERTIFICATE OF APPROVAL

APPROVED THIS THE _____ DAY OF _____, 20 ____, BY THE PLANNING COMMISSION OF THE CITY OF NEW BRAUNFELS, TEXAS.

_____
PLANNING COMMISSION CHAIRPERSON

APPROVED FOR ACCEPTANCE

_____ _____
DATE DIRECTOR OF PLANNING

_____ _____
DATE CITY ENGINEER

_____ _____
DATE NEW BRAUNFELS UTILITIES

SURVEYOR'S NOTES:
1. MONUMENTS WERE FOUND OR SET AT EACH CORNER OF THE SURVEY BOUNDARY OF THE SUBDIVISION AS NOTED. MONUMENTS AND LOT MARKERS WILL BE SET WITH ½" IRON ROD WITH CAP MARKED "PAPE-DAWSON" OR MAG NAIL WITH DISK MARKED "PAPE-DAWSON" AFTER COMPLETION OF UTILITY INSTALLATION AND STREET CONSTRUCTION UNLESS NOTED OTHERWISE.
2. COORDINATES SHOWN ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE DISPLAYED IN GRID VALUES DERIVED FROM THE NGS COOPERATIVE CORS NETWORK.
3. DIMENSIONS SHOWN ARE SURFACE (SCALE FACTOR = 0.9998600196)
4. BEARINGS ARE BASED ON THE NORTH AMERICAN DATUM OF 1983 NAD83 (NA2011) EPOCH 2010.00, FROM THE TEXAS COORDINATE SYSTEM ESTABLISHED FOR THE SOUTH CENTRAL ZONE.

KNOW ALL MEN BY THESE PRESENTS

I, THE UNDERSIGNED KEITH W. WOOLEY, A REGISTERED PROFESSIONAL LAND SURVEYOR IN THE STATE OF TEXAS, HEREBY CERTIFY THAT THIS PLAT IS TRUE AND CORRECTLY MADE UNDER MY SUPERVISION AND IN COMPLIANCE WITH CITY AND STATE SURVEY REGULATIONS AND LAWS AND MADE ON THE GROUND AND THAT THE CORNER MONUMENTS WERE PROPERLY PLACED UNDER MY SUPERVISION.

PRELIMINARY, THIS DOCUMENT SHALL NOT BE RECORDED FOR ANY PURPOSE AND SHALL NOT BE USED OR VIEWED OR RELIED UPON AS A FINAL SURVEY DOCUMENT.

KEITH W. WOOLEY
REGISTERED PROFESSIONAL LAND SURVEYOR #5463
PAPE-DAWSON ENGINEERS, INC.

PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

CURVE AND LINE DATA ON SHEET 2 OF 2

SHEET 1 OF 2

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

DATE OF PREPARATION: May 2, 2024

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI PRECINCT 11A SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

_____
OWNER/DEVELOPER: PETER JAMES DATE
VERAMENDI PE-CAIRNS, LLC
2168 OAK RUN PKWY
NEW BRAUNFELS, TEXAS 78132

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _____ DAY OF _____, 20___, BY _____.

_____
NOTARY PUBLIC

STATE OF _____

MY COMMISSION EXPIRES: _____

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS THE VERAMENDI PRECINCT 11A SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

_____
OWNER/DEVELOPER: PETER JAMES DATE
VERAMENDI PE-CAIRNS, LLC
2168 OAK RUN PKWY
NEW BRAUNFELS, TEXAS 78132

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _____ DAY OF _____, 20___, BY _____.

_____
NOTARY PUBLIC

STATE OF _____

MY COMMISSION EXPIRES: _____

STATE OF TEXAS
COUNTY OF COMAL

I (WE), THE UNDERSIGNED OWNER(S) OF THE LAND SHOWN ON THIS PLAT, AND DESIGNATED HEREIN AS VERAMENDI PRECINCT 11A SUBDIVISION TO THE CITY OF NEW BRAUNFELS, COUNTY OF COMAL, TEXAS, AND WHOSE NAME IS SUBSCRIBED HERETO, DO HEREBY SUBDIVIDE SUCH PROPERTY AND DEDICATE TO THE USE OF THE PUBLIC ALL STREETS, ALLEYS, PARKS, DRAINS, EASEMENTS, AND PUBLIC PLACES THEREON SHOWN FOR THE PURPOSES AND CONSIDERATION THEREIN EXPRESSED.

_____
OWNER/DEVELOPER: DATE

COMAL COUNTY WCID 1A
1108 LAVACA, SUITE 510
AUSTIN, TX 78701

STATE OF TEXAS
COUNTY OF COMAL

THIS INSTRUMENT WAS ACKNOWLEDGED BEFORE ME ON THIS _____ DAY OF _____, 20___, BY _____.

_____
NOTARY PUBLIC

STATE OF _____

MY COMMISSION EXPIRES: _____

STATE OF TEXAS

COUNTY OF COMAL

I, _____, DO HEREBY CERTIFY THAT THE FOREGOING INSTRUMENT WAS FILED FOR RECORD IN THE MAP AND PLAT RECORDS,

DOC #_____ OF COMAL COUNTY ON THE

_____ DAY OF _____, 20____, AT ____ M.

WITNESS MY HAND OFFICIAL SEAL, THIS THE _____DAY OF _____ 20_____.

_____
COUNTY CLERK, COMAL COUNTY, TEXAS

_____
DEPUTY

NOTE
THE VERAMENDI PRECINCT 11A PLAT WAS APPROVED WITH CONDITIONS AT THE CITY OF NEW BRAUNFELS PLANNING COMMISSION ON XX/XX/XXXX.

VERAMENDI PRECINCT 11A
Civil Job No. 30001-81; Survey Job No. 9230-19
Save: 3/13/2024 1:15 PM User: carcher
File: P:\300\01\81\Design\Civil\PLAT-30001-81.dwg

NO. REVISION DATE

5-3-2024
STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
PLAT

PLAT NO. _____
JOB NO. 30001-81
DATE MAY 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C0.02

SUBDIVISION PLAT
OF
VERAMENDI PRECINCT 11A

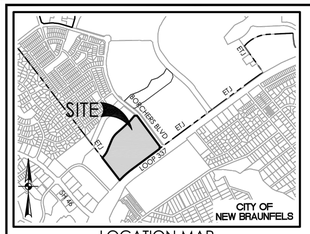
BEING 34.171 ACRES OF LAND, A PORTION OUT OF THE 48.237 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201606060947З, AND A PORTION OUT OF THE 255.715 ACRE TRACT DESCRIBED IN DOCUMENT NO. 201706013192, BOTH IN THE OFFICIAL PUBLIC RECORDS OF COMAL COUNTY TEXAS, IN THE JUAN MARTIN DE VERAMENDI SURVEY NO. 2, ABSTRACT 3, COMAL COUNTY, TEXAS.

SCALE: 1"= 200'

0' 200' 400' 600'

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

DATE OF PREPARATION: May 2, 2024



LOCATION MAP
NOT-TO-SCALE

LEGEND

AC	ACRE(S)	VOL	VOLUME
BLK	BLOCK	PG	PAGE(S)
DOC	DOCUMENT NUMBER	ROW	RIGHT-OF-WAY
DRCC	DEED RECORDS OF COMAL COUNTY, TEXAS	VAR WID	VARIABLE WIDTH
		● (SURVEYOR)	FOUND 1/2" IRON ROD (UNLESS NOTED OTHERWISE)
ELEC	ELECTRICAL	○	SET 1/2" IRON ROD (PD)
ESMT	EASEMENT	○	SET 1/2" IRON ROD (PD)-ROW
ETJ	EXTRATERRITORIAL JURISDICTION		
MPR	MAP AND PLAT RECORDS OF COMAL COUNTY, TEXAS		
OPR	OFFICIAL PUBLIC RECORDS OF COMAL COUNTY, TEXAS		

1% ANNUAL CHANCE (100-YR) FUTURE CONDITIONS FLOODPLAIN
CENTERLINE

1. 20' UTILITY EASEMENT
2. 85' ACCESS EASEMENT
3. 30' LANDSCAPE & PEDESTRIAN EASEMENT
4. VAR WID SANITARY SEWER EASEMENT
5. 40' UTILITY & DRAINAGE ESMT (DOC 200106003623, MPR)
6. 30' UTILITY AND DRAINAGE ESMT (DOC 200106003623, MPR)
7. UTILITY & ACCESS EASEMENT (DOC 200506023866, OPR)
8. 10' SANITARY SEWER ESMT (DOC _____, OPR)
9. 20' UTILITY EASEMENT (DOC 202306002391, MPR)
10. 3.24 ACRE SEWER EASEMENT (DOC 289590, OPR)
11. 20' UTILITY EASEMENT (DOC 201806040233, OPR)

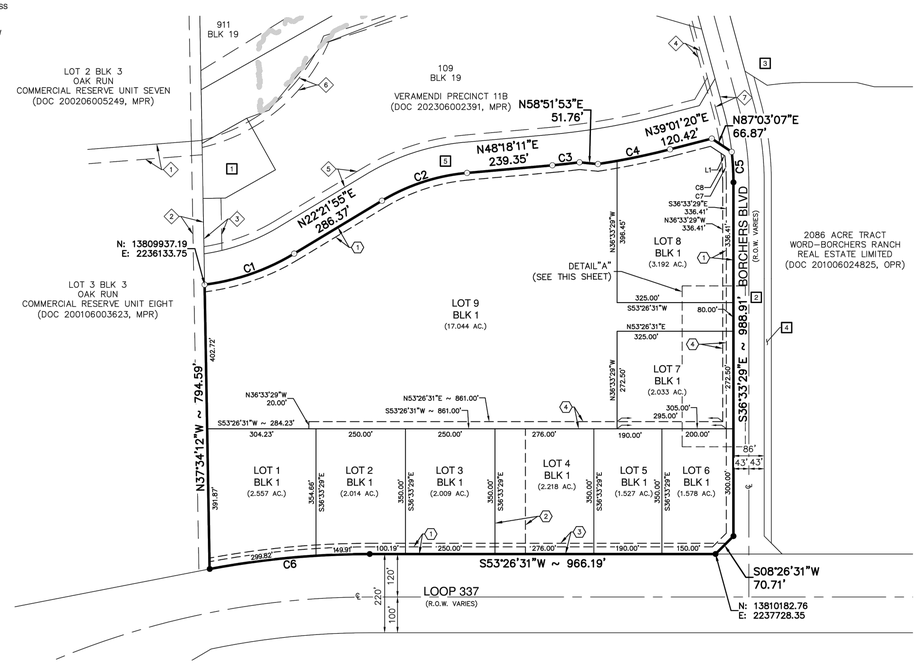
1. NBU OAKBROOK (DOC 202006059261, MPR)
2. VERAMENDI 1A-1 (DOC 201806043757, OPR)
3. VERAMENDI PRECINCT 10B (DOC 202306002378, MPR)
4. 255.715 ACRE TRACT VERAMENDI PE-BRISBANE, LLC. (DOC 201806013192, OPR)
5. REMAINDER OF 48.237 ACRE TRACT VERAMENDI PE-CAIRNS, LLC. (DOC 201906036476, OPR)

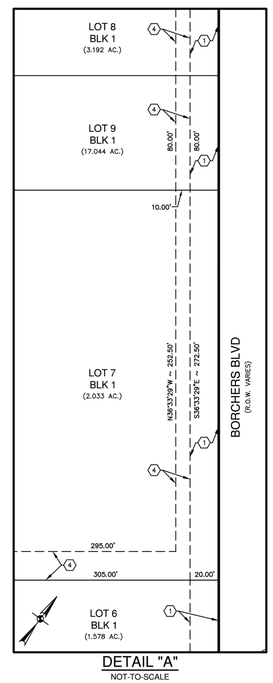
CURVE TABLE

CURVE #	RADIUS	DELTA	CHORD BEARING	CHORD	LENGTH
C1	643.00'	23°46'30"	N34°15'10"E	264.90'	266.81'
C2	557.00'	25°56'16"	N35°20'03"E	250.01'	252.15'
C3	2043.00'	2°08'23"	N47°13'59"E	76.29'	76.30'
C4	2055.00'	5°43'59"	N41°53'20"E	205.54'	205.62'
C5	757.00'	6°28'04"	S39°47'32"E	85.41'	85.45'
C6	2412.00'	10°40'59"	S48°06'01"W	449.08'	449.73'
C7	737.00'	5°44'53"	S39°25'56"E	73.91'	73.94'
C8	727.00'	6°23'51"	N39°45'25"W	81.13'	81.17'

LINE TABLE

LINE #	BEARING	LENGTH
L1	N87°03'07"E	12.99'





DETAIL "A"
NOT-TO-SCALE

PLAT NOTES APPLY TO EVERY PAGE OF THIS MULTIPLE PAGE PLAT

CURVE AND LINE DATA ON THIS SHEET

SHEET 2 OF 2

NOTE
THE VERAMENDI PRECINCT 11A PLAT WAS APPROVED WITH CONDITIONS AT THE CITY OF NEW BRAUNFELS PLANNING COMMISSION ON XX/XX/XXXX.

NO.	REVISION	DATE

5-3-2024
STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
PLAT

PLAT NO.
JOB NO. 30001-81
DATE MAY 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C0.03

VERAMENDI PRECINCT 11A
Civil Job No. 30001-81; Survey Job No. 9230-19

Date: March 13, 2024, 1:16 PM — User ID: carcher
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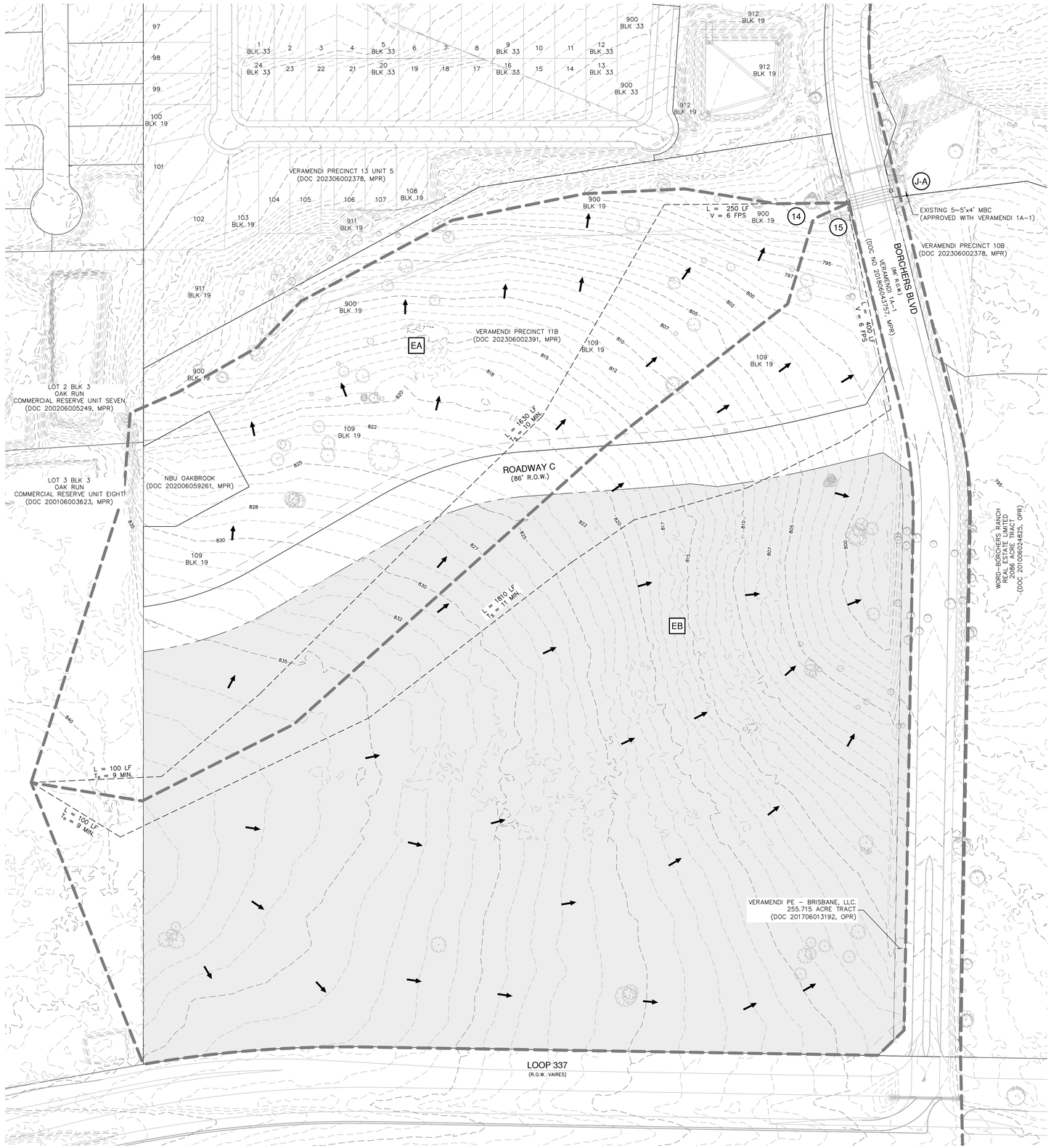
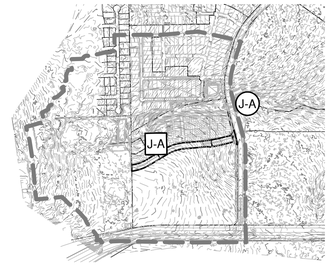
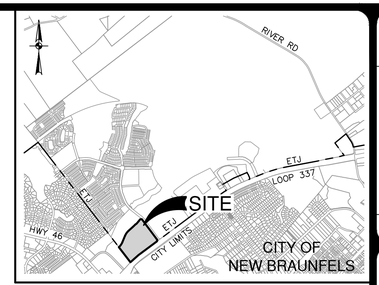




DETAIL "A"
SCALE 1:1000



LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 100'
0' 100' 200' 300'

MASTER DRAINAGE LEGEND

PROJECT LIMITS	
EXISTING CONTOUR	690
100 YR FLOODPLAIN	
RUNOFF FLOW PATH	
DRAINAGE AREA BOUNDARY	
FHA LOT GRADING TYPE	A,B,C
PROPOSED DIRECTION OF FLOW	
DRAINAGE CALCULATION POINT	11
DRAINAGE AREA	A

Calc Pt	Description	Drainage Area ID	Drainage Area Acres	Time of Conc. (minutes)	Intensity (in/hr)	C	Discharge Q (cfs)	Frequency (year)
14	EXISTING OUTFALL	EA	19.15	19.00	3.75	0.33	24	2
					5.50	0.38	40	10
					6.62	0.42	53	25
					8.46	0.49	79	100
15	EXISTING OUTFALL	EB	35.79	21.00	3.57	0.33	42	2
					5.23	0.38	71	10
					6.29	0.42	95	25
					8.01	0.49	140	100
J-A	MODELED WITH HEC-HMS EXISTING 5~5'X4' MBC (APPROVED WITH VERAMENDI 1A-1)						363	2
							696	10
							872	25
							1198	100

NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
9-19-2024

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
OVERALL DRAINAGE PLAN - EXISTING CONDITIONS

PLAT NO.
JOB NO. 30001-81
DATE SEPTEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C1.00

Date: March 13, 2024, 1:30 PM - User ID: ckowalski
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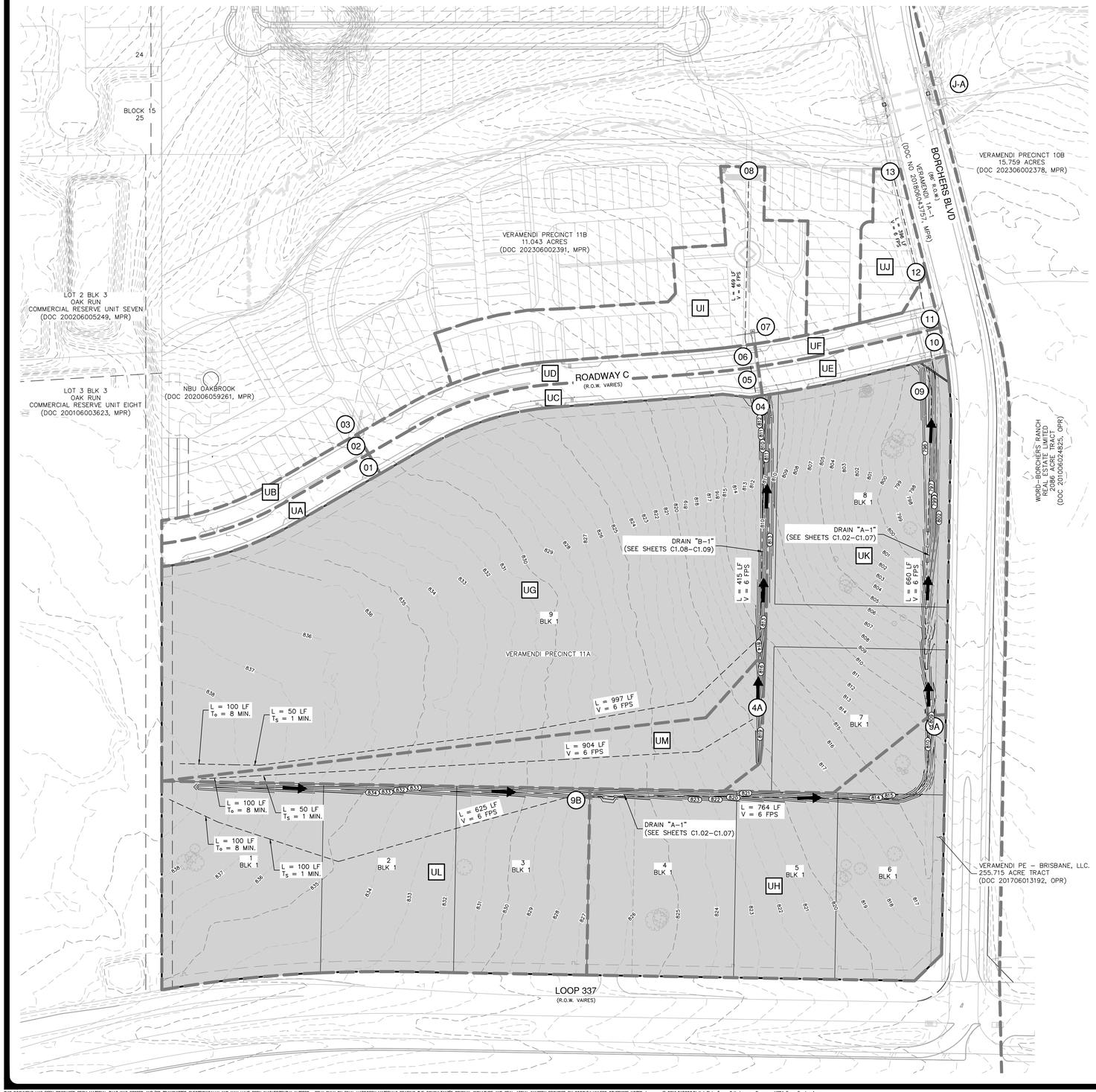
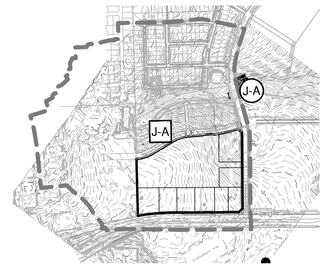
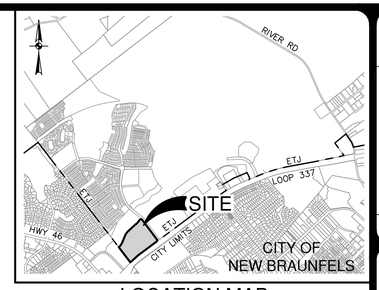




DETAIL "A"
SCALE 1:1000



LOCATION MAP
NOT-TO-SCALE

SCALE: 1"= 100'
0' 100' 200' 300'

MASTER DRAINAGE LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR — 690
- 100 YR FLOODPLAIN
- RUNOFF FLOW PATH
- DRAINAGE AREA BOUNDARY
- FHA LOT GRADING TYPE — A,B,C
- PROPOSED DIRECTION OF FLOW
- DRAINAGE CALCULATION POINT — 11
- DRAINAGE AREA — A

NOTE:
ULTIMATE DEVELOPMENT IMPERVIOUS COVER VALUE FOR EACH INDIVIDUAL LOTS 1-9 NOT TO EXCEED 90% PER THE APPROVED VERAMENDI SECTOR PLAN 2.

Calc Pt	Description	Drainage Area		Time of Conc. (minutes)	Intensity (in/hr)	C	Discharge Q (cfs)	Frequency (year)	Total Q (cfs)
		Area ID	Acres						
1	ON GRADE INLET PULL FOR WQ	UA	0.43	10.00	5.05	0.68	1	2	
					7.50	0.75	2	10	
					9.12	0.80	3	25	
					11.70	0.89	4	100	
2	ON GRADE INLET PULL FOR WQ	UB	0.41	10.00	5.05	0.67	1	2	
					7.50	0.74	2	10	
					9.12	0.79	3	25	
					11.70	0.88	4	100	
3	PIPE FLOW	UA+UB						2	3
								10	5
								25	6
								100	9
4	DRAIN B-1	UG+UM	16.11	11.00	4.87	0.33	26	2	
					7.23	0.38	44	10	
					8.78	0.42	59	25	
					11.26	0.49	89	100	
4A	DRAIN B-1	UM	2.04	11.00	4.87	0.33	3	2	
					7.23	0.38	6	10	
					8.78	0.42	8	25	
					11.26	0.49	11	100	
5	ON GRADE INLET PULL FOR WQ	UC	0.76	10.00	5.05	0.66	3	2	
					7.50	0.73	4	10	
					9.12	0.78	5	25	
					11.70	0.87	8	100	
6	ON GRADE INLET PULL FOR WQ	UD	0.76	10.00	5.05	0.66	3	2	
					7.50	0.74	4	10	
					9.12	0.79	5	25	
					11.70	0.87	8	100	
7	PIPE FLOW	UG+UM+UC(C)+UD(C)						2	31
								10	53
								25	70
								100	104
8	BASIN OUTFALL	UI+UG+UM+UC(C)+UD(C)	18.85	14.00	4.39	0.60	49	2	55
					6.47	0.67	81	10	90
					7.82	0.71	105	25	116
					10.03	0.80	151	100	166
9	DRAIN A-1	UK+UH+UL	18.09	13.00	4.54	0.71	58	2	
					6.72	0.79	95	10	
					8.13	0.83	123	25	
					10.42	0.92	174	100	
9A	DRAIN A-1	UH+UL	12.31	11.00	4.87	0.71	42	2	
					7.23	0.79	70	10	
					8.78	0.83	90	25	
					11.26	0.92	128	100	
9B	DRAIN A-1	UL	6.58	11.00	4.87	0.71	23	2	
					7.23	0.79	37	10	
					8.78	0.83	48	25	
					11.26	0.92	68	100	
10	ON GRADE INLET PULL FOR WQ	UE	0.47	10.00	5.05	0.64	2	2	
					7.50	0.71	3	10	
					9.12	0.76	3	25	
					11.70	0.84	5	100	
11	ON GRADE INLET PULL FOR WQ	UF	0.39	10.00	5.05	0.65	1	2	
					7.50	0.72	2	10	
					9.12	0.77	3	25	
					11.70	0.86	4	100	
12	PIPE FLOW	UH+UL+UK+UE(C)+UF(C)						2	61
								10	100
								25	129
								100	182
13	DRAIN OUTFALL	UJ+UH+UL+UK+UE(C)+UF(C)	18.30	15.00	4.24	0.60	46	2	49
					6.24	0.67	76	10	81
					7.52	0.71	98	25	104
					9.64	0.80	141	100	149
J-A	MODELED WITH HEC-HMS EXISTING 5'~5'X4' MBC (APPROVED WITH VERAMENDI 1A-1)							2	422
								10	775
								25	940
								100	1250

NO.	REVISION	DATE

11-11-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5633
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
OVERALL DRAINAGE PLAN - ULTIMATE CONDITIONS

PLAT NO.
JOB NO. 30001-81
DATE NOVEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C1.01

Date: March 13, 2024, 8:19 AM - User ID: MGoncalves
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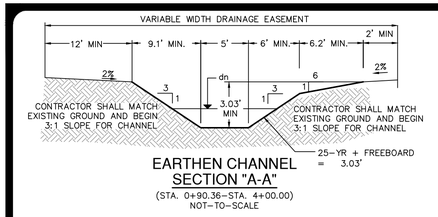
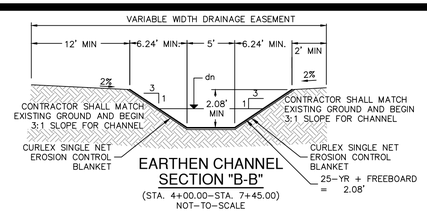
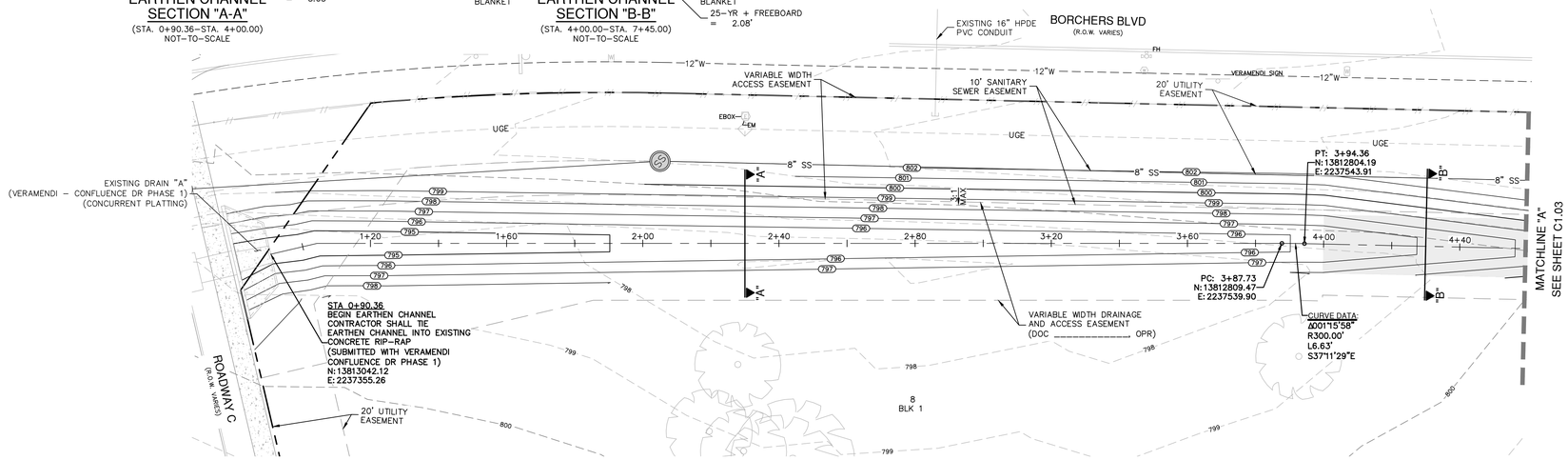


EARTHEN CHANNEL SECTION "A-A"
(STA. 0+90.36–STA. 4+00.00)
NOT-TO-SCALE

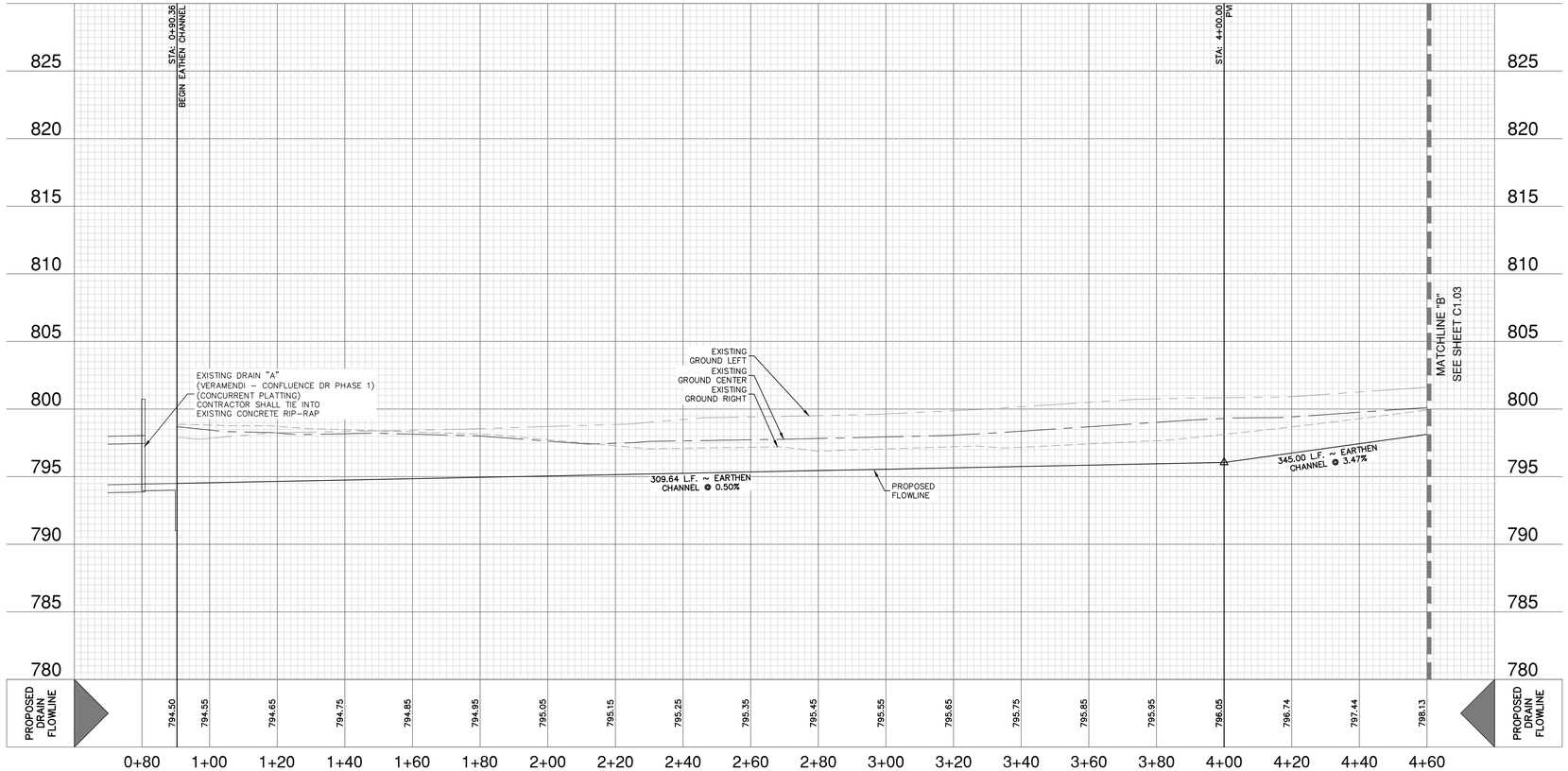


EARTHEN CHANNEL SECTION "B-B"
(STA. 4+00.00–STA. 7+45.00)
NOT-TO-SCALE



STORM DRAIN "A-1"
STA 0+90.36 TO 4+60.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- EXISTING FIRE HYDRANT
- EXISTING WATER — W
- EXISTING UNDERGROUND ELECTRIC — UGE
- EXISTING GAS — G
- EXISTING SEWER — SS
- PROPOSED SEWER — SS — MANHOLE
- PROPOSED WATER — W — FIRE HYDRANT
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS — G
- PROPOSED UNDERGROUND ELECTRIC — UGE
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- EXISTING TREE TO REMAIN

HYDRAULIC CALCULATIONS EARTH CHANNEL STA. 0+90.36 TO 4+00.00	
Q_{25}	= 123 CFS
n	= 0.035
S	= 0.50%
dn_{25}	= 2.53 FT
dn_{25} + Fbrd.	= 3.03 FT
V_{25}	= 3.81 FPS
Q_2	= 58 CFS
V_2	= 3.23 FPS
Q_{100}	= 174 CFS
dn_{100}	= 2.96 FT
V_{100}	= 4.11 FPS

HYDRAULIC CALCULATIONS EARTH CHANNEL STA. 4+00.00 TO 7+45.00	
Q_{25}	= 123 CFS
n	= 0.035
S	= 3.47%
dn_{25}	= 1.58 FT
dn_{25} + Fbrd.	= 2.08 FT
V_{25}	= 8.04 FPS
Q_2	= 58 CFS
V_2	= 6.54 FPS
Q_{100}	= 174 CFS
dn_{100}	= 1.87 FT
V_{100}	= 8.82 FPS

DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF NEW BRAUNFELS WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NO.	REVISION	DATE

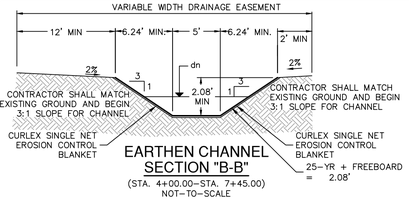
STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
2-14-2025

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288800

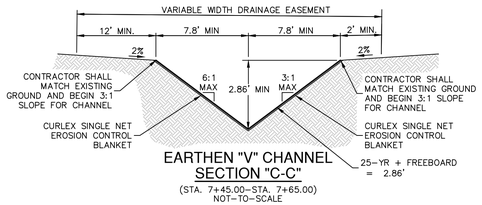
VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

STORM DRAIN A-1 - PLAN & PROFILE
STA 0+90.36 TO 4+60.00

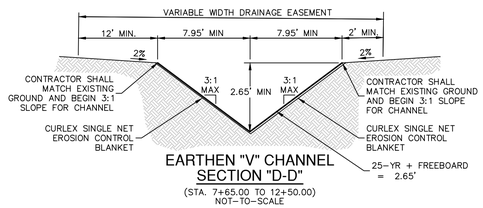
PLAT NO. _____
JOB NO. 30001-81
DATE FEBRUARY 2025
DESIGNER CP
CHECKED CP DRAWN CP
SHEET C1.02



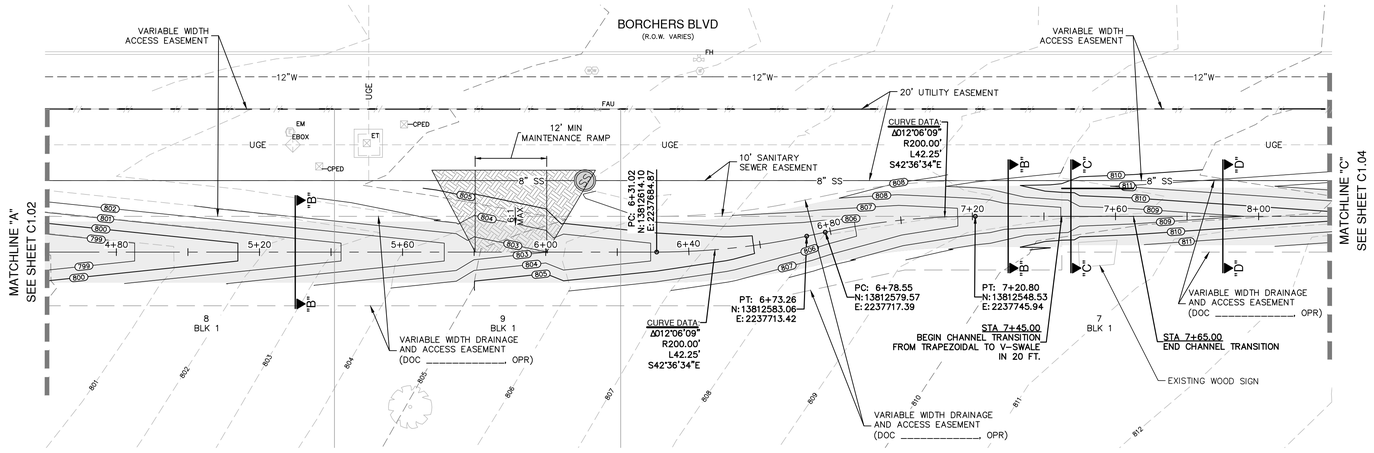
EARTHEN CHANNEL
SECTION "B-B"
(STA. 4+00.00–STA. 7+45.00)
NOT–TO–SCALE



EARTHEN "V" CHANNEL
SECTION "C-C"
(STA. 7+45.00–STA. 7+65.00)
NOT–TO–SCALE



EARTHEN "V" CHANNEL
SECTION "D-D"
(STA. 7+65.00 TO 12+50.00)
NOT–TO–SCALE

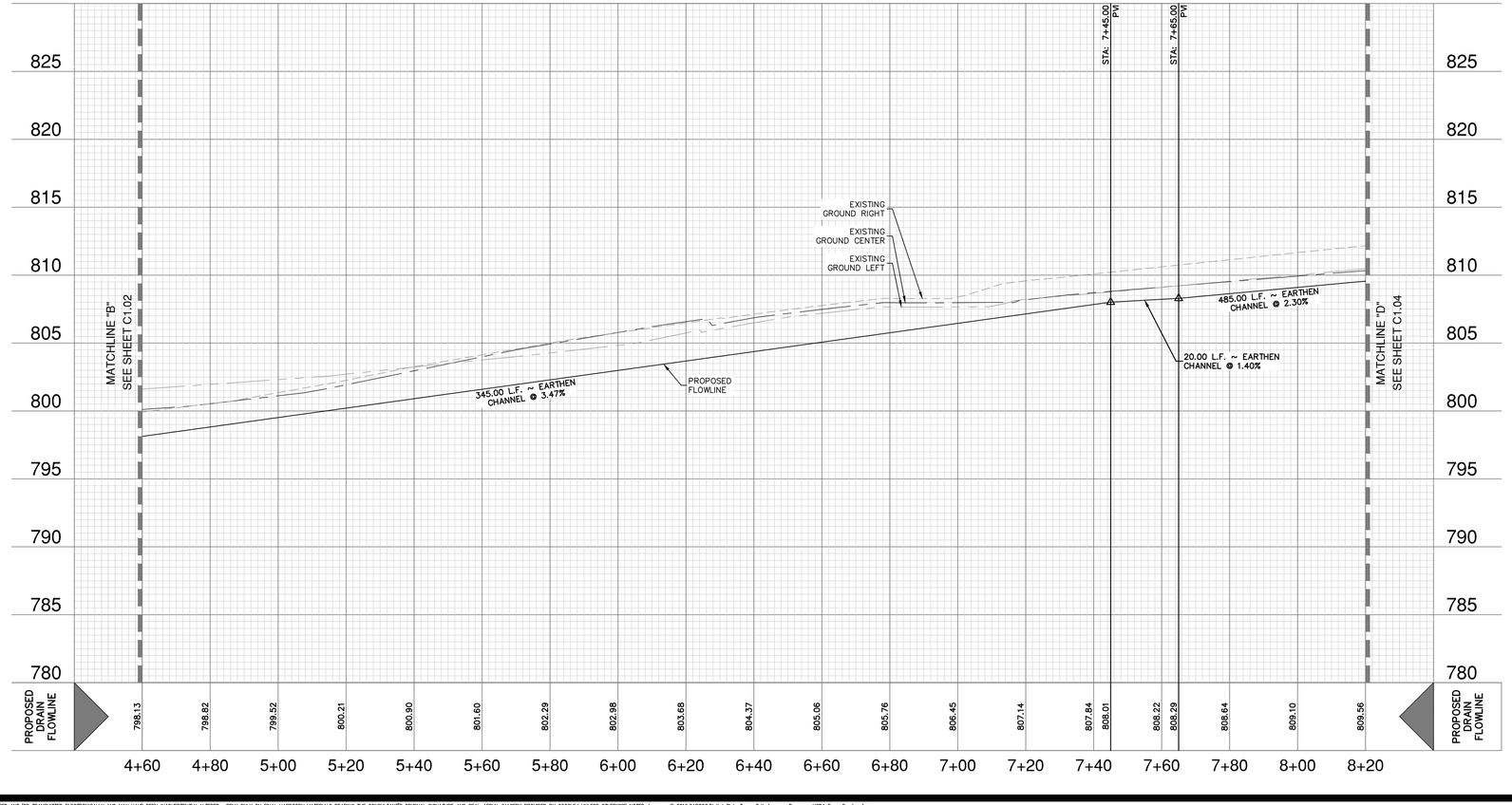


DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690 —
- PROPOSED CONTOUR — 690 —
- EXISTING FIRE HYDRANT — W —
- EXISTING WATER — W —
- EXISTING UNDERGROUND ELECTRIC — UGE —
- EXISTING GAS — G —
- EXISTING SEWER — SS —
- PROPOSED SEWER — SS — MANHOLE
- PROPOSED WATER — W — FIRE HYDRANT
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS — G —
- PROPOSED UNDERGROUND ELECTRIC — UGE —
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- EXISTING TREE TO REMAIN

STORM DRAIN "A-1"
STA 4+60.00 TO 8+20.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS EARTH CHANNEL STA. 4+00.00 TO 7+45.00	
Q_{25}	= 123 CFS
n	= 0.035
S	= 3.47%
dn_{25}	= 1.58 FT
dn_{25} + Fbrd.	= 2.08 FT
V_{25}	= 8.04 FPS
Q_2	= 58 CFS
V_2	= 6.54 FPS
Q_{100}	= 174 CFS
dn_{100}	= 1.87 FT
V_{100}	= 8.82 FPS

HYDRAULIC CALCULATIONS EARTH CHANNEL STA. 7+45.00 TO 7+65.00	
Q_{25}	= 90 CFS
n	= 0.035
S	= 1.40%
dn_{25}	= 2.36 FT
dn_{25} + Fbrd.	= 2.86 FT
V_{25}	= 5.41 FPS
Q_2	= 42 CFS
V_2	= 4.47 FPS
Q_{100}	= 128 CFS
dn_{100}	= 2.69 FT
V_{100}	= 5.91 FPS

HYDRAULIC CALCULATIONS EARTH CHANNEL STA. 7+65.00 TO 12+50.00	
Q_{25}	= 90 CFS
n	= 0.035
S	= 2.30%
dn_{25}	= 2.15 FT
dn_{25} + Fbrd.	= 2.65 FT
V_{25}	= 6.52 FPS
Q_2	= 42 CFS
V_2	= 5.39 FPS
Q_{100}	= 128 CFS
dn_{100}	= 2.45 FT
V_{100}	= 7.12 FPS

DRAINAGE & GRADING NOTES:

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7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.

CAUTION!!

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NO.	REVISION	DATE

2–14–2025

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

STORM DRAIN A-1 - PLAN & PROFILE
STA 4+60.00 TO 8+20.00

PLAT NO.
JOB NO. 30001-81
DATE FEBRUARY 2025
DESIGNER CP
CHECKED CP DRAWN CP
SHEET C1.03

Date: March 13, 2024, 11:50 AM – User ID: hhenke
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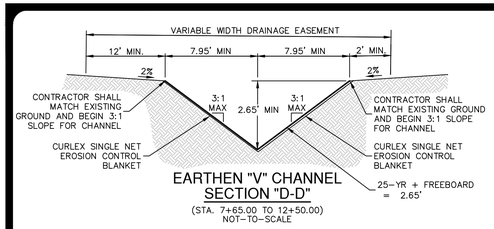
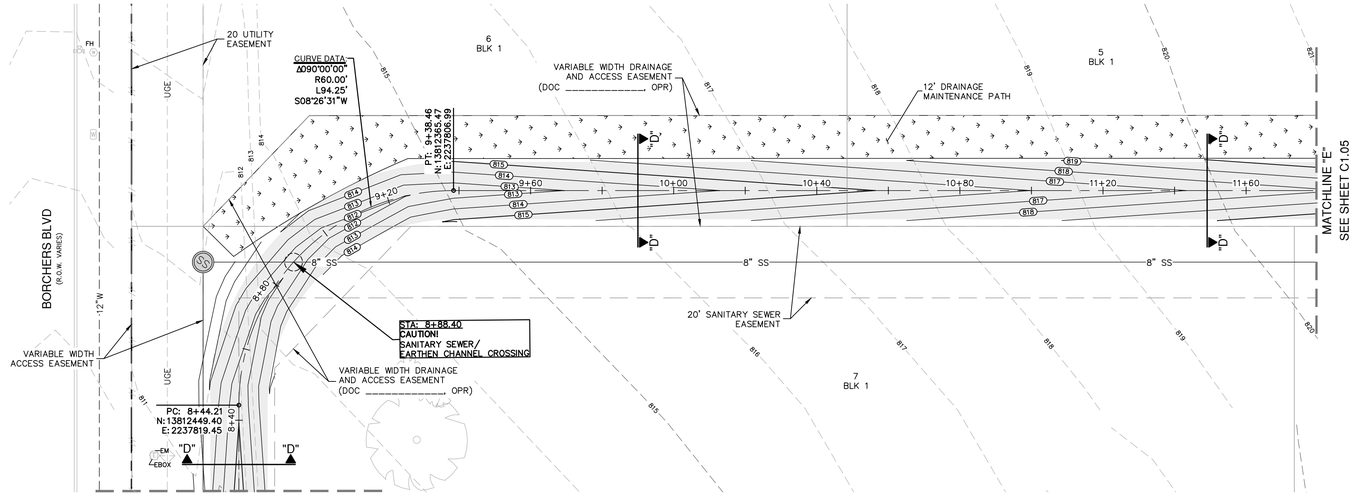


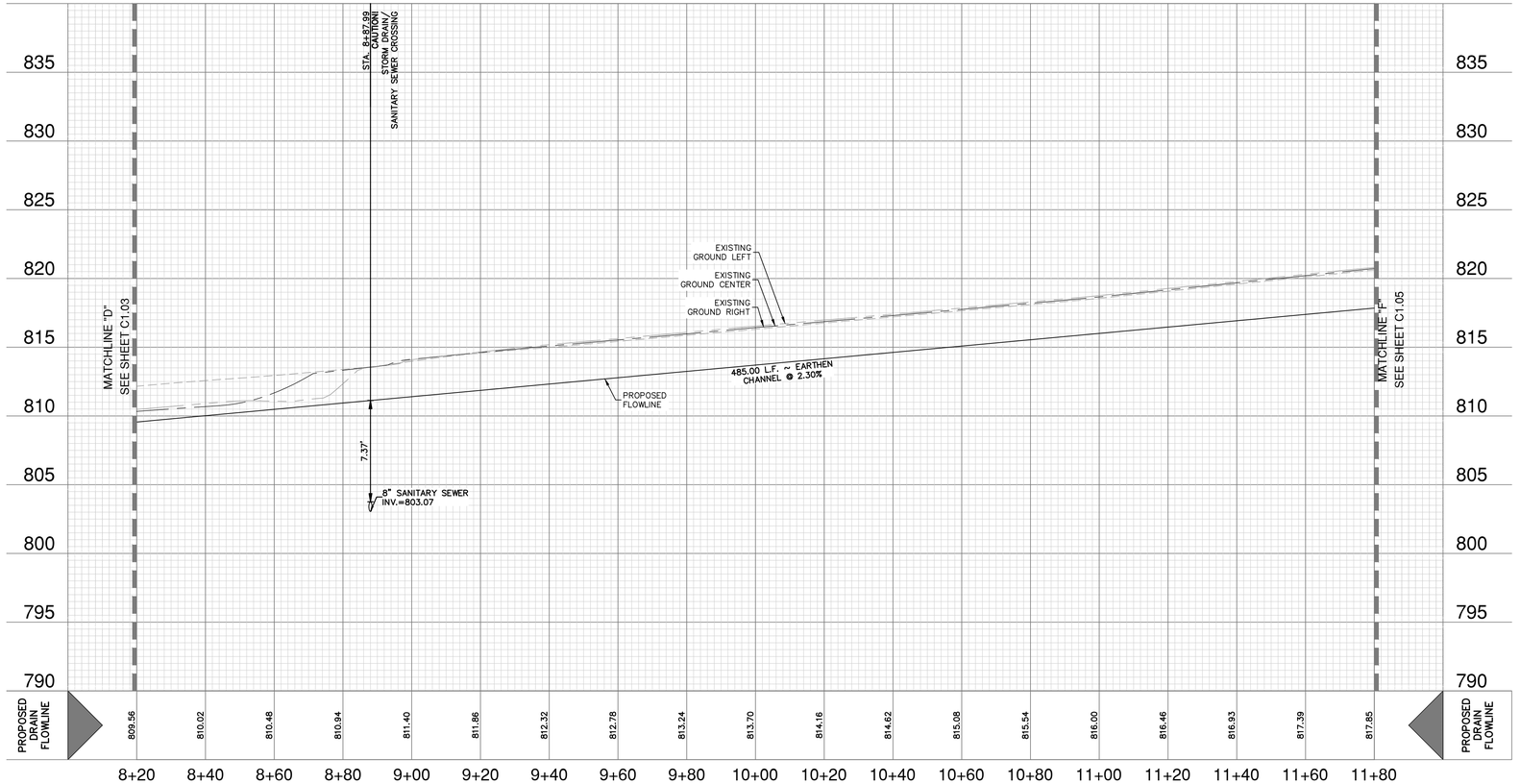
EARTHEN "V" CHANNEL SECTION "D-D"

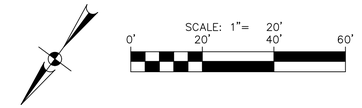
(STA. 7+65.00 TO 12+50.00)
NOT-TO-SCALE



STORM DRAIN "A-1"
STA 8+20.00 TO 11+80.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'





DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- EXISTING FIRE HYDRANT
- EXISTING WATER — W
- EXISTING UNDERGROUND ELECTRIC — UGE
- EXISTING GAS — G
- EXISTING SEWER — SS — MANHOLE
- PROPOSED SEWER — SS
- FIRE HYDRANT
- PROPOSED WATER — W
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS — G
- PROPOSED UNDERGROUND ELECTRIC — UGE
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- EXISTING TREE TO REMAIN

HYDRAULIC CALCULATIONS
EARTH CHANNEL
STA. 7+65.00 TO 12+50.00

Q_{25}	= 90 CFS
n	= 0.035
S	= 2.30%
dn_{25}	= 2.15 FT
dn_{25} + Fbrd.	= 2.65 FT
V_{25}	= 6.52 FPS
Q_2	= 42 CFS
V_2	= 5.39 FPS
Q_{100}	= 128 CFS
dn_{100}	= 2.45 FT
V_{100}	= 7.12 FPS

DRAINAGE & GRADING NOTES:

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CAUTION!!

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NO.	REVISION	DATE

12-11-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

STORM DRAIN A-1 - PLAN & PROFILE
STA 8+20.00 TO 11+80.00

PLAT NO.
JOB NO. 30001-81
DATE DECEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C1.04

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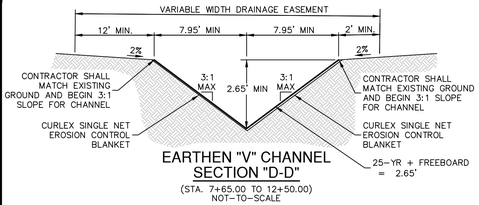
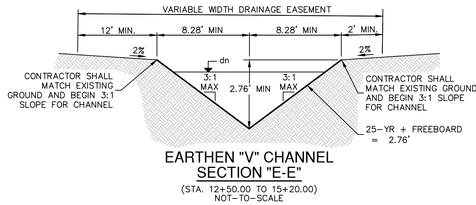
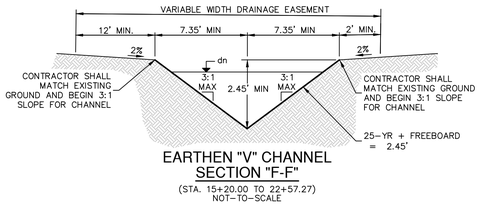


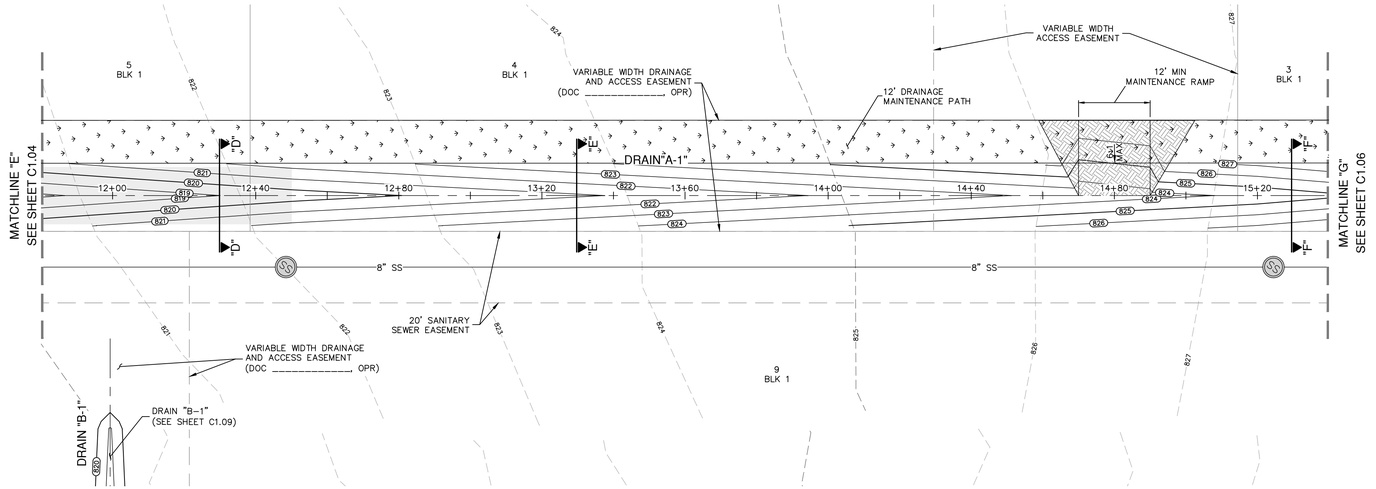
EARTHEN "V" CHANNEL
SECTION "D-D"
(STA. 7+65.00 TO 12+50.00)
NOT-TO-SCALE



EARTHEN "V" CHANNEL
SECTION "E-E"
(STA. 12+50.00 TO 15+20.00)
NOT-TO-SCALE

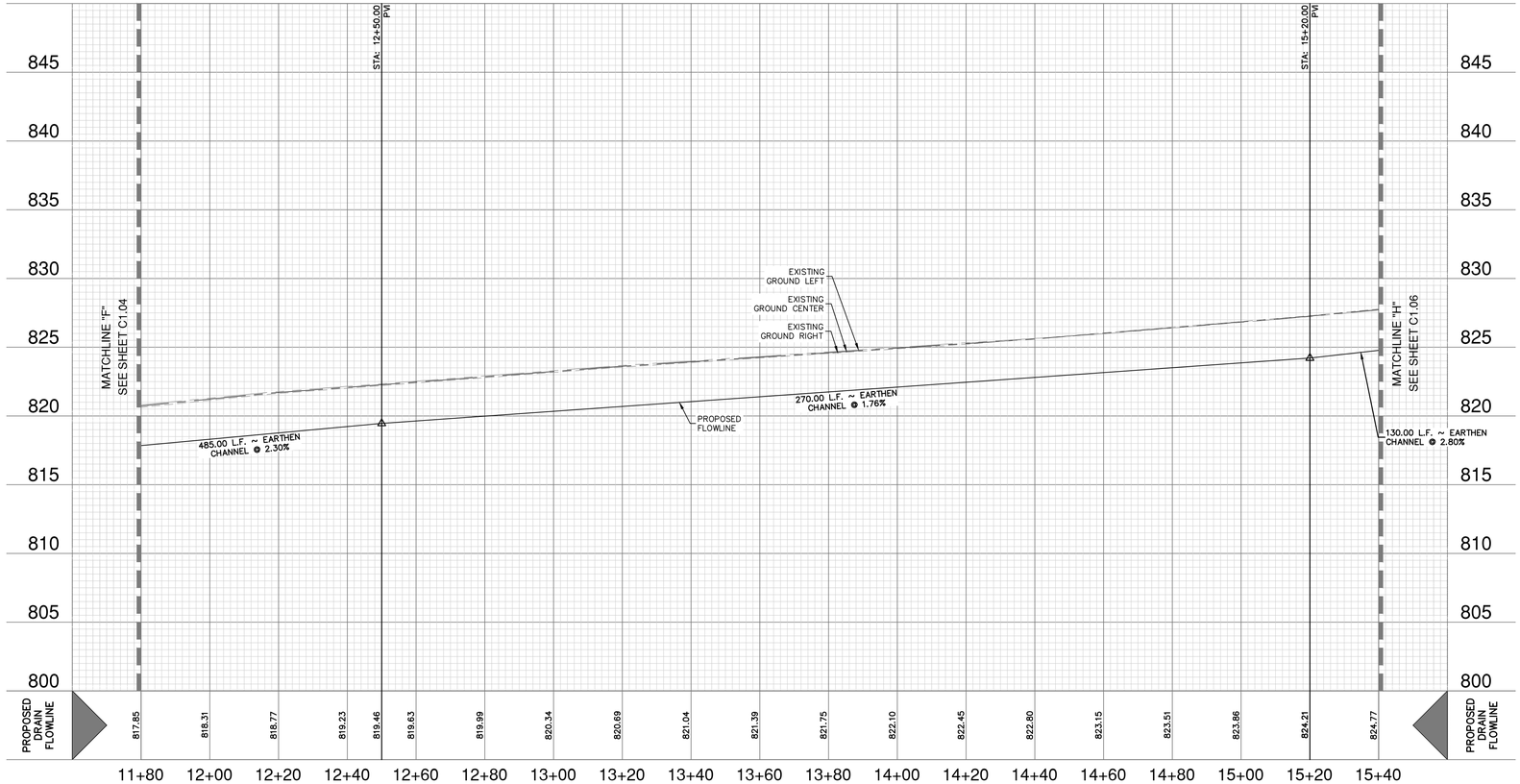


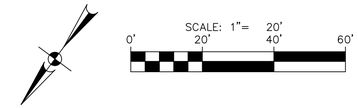
EARTHEN "V" CHANNEL
SECTION "F-F"
(STA. 15+20.00 TO 22+57.27)
NOT-TO-SCALE



STORM DRAIN "A-1"
STA 11+80.00 TO 15+40.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'





DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690
- PROPOSED CONTOUR — 690
- EXISTING FIRE HYDRANT
- EXISTING WATER — W
- EXISTING UNDERGROUND ELECTRIC — UGE
- EXISTING GAS — G
- EXISTING SEWER — SS — MANHOLE
- PROPOSED SEWER — SS
- PROPOSED WATER — FIRE HYDRANT — W
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS — G
- PROPOSED UNDERGROUND ELECTRIC — UGE
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- EXISTING TREE TO REMAIN

HYDRAULIC CALCULATIONS EARTH CHANNEL STA. 7+65.00 TO 12+50.00	
Q_{25}	= 90 CFS
n	= 0.035
S	= 2.30%
dn_{25}	= 2.15 FT
dn_{25} + Fbrd.	= 2.65 FT
V_{25}	= 6.52 FPS
Q_2	= 42 CFS
V_2	= 5.39 FPS
Q_{100}	= 128 CFS
dn_{100}	= 2.45 FT
V_{100}	= 7.12 FPS

HYDRAULIC CALCULATIONS EARTH CHANNEL STA. 12+50.00 TO 15+20.00	
Q_{25}	= 90 CFS
n	= 0.035
S	= 2.30%
dn_{25}	= 2.26 FT
dn_{25} + Fbrd.	= 2.76 FT
V_{25}	= 5.89 FPS
Q_2	= 42 CFS
V_2	= 4.87 FPS
Q_{100}	= 128 CFS
dn_{100}	= 2.58 FT
V_{100}	= 6.44 FPS

HYDRAULIC CALCULATIONS EARTH CHANNEL STA. 15+20.00 TO 16+50.00	
Q_{25}	= 48 CFS
n	= 0.035
S	= 2.80%
dn_{25}	= 1.64 FT
dn_{25} + Fbrd.	= 2.14 FT
V_{25}	= 5.95 FPS
Q_2	= 23 CFS
V_2	= 4.99 FPS
Q_{100}	= 68 CFS
dn_{100}	= 1.87 FT
V_{100}	= 6.84 FPS

DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF NEW BRAUNFELS WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NO.	REVISION	DATE

8-6-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

STORM DRAIN A-1 - PLAN & PROFILE
STA 11+80.00 TO 15+40.00

PLAT NO.
JOB NO. 30001-81
DATE AUGUST 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C1.05

Date: March 13, 2024, 3:58 PM - User ID: ckowalski
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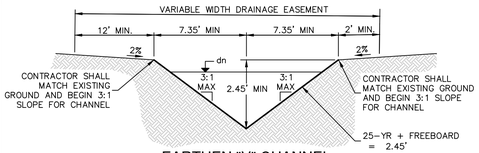
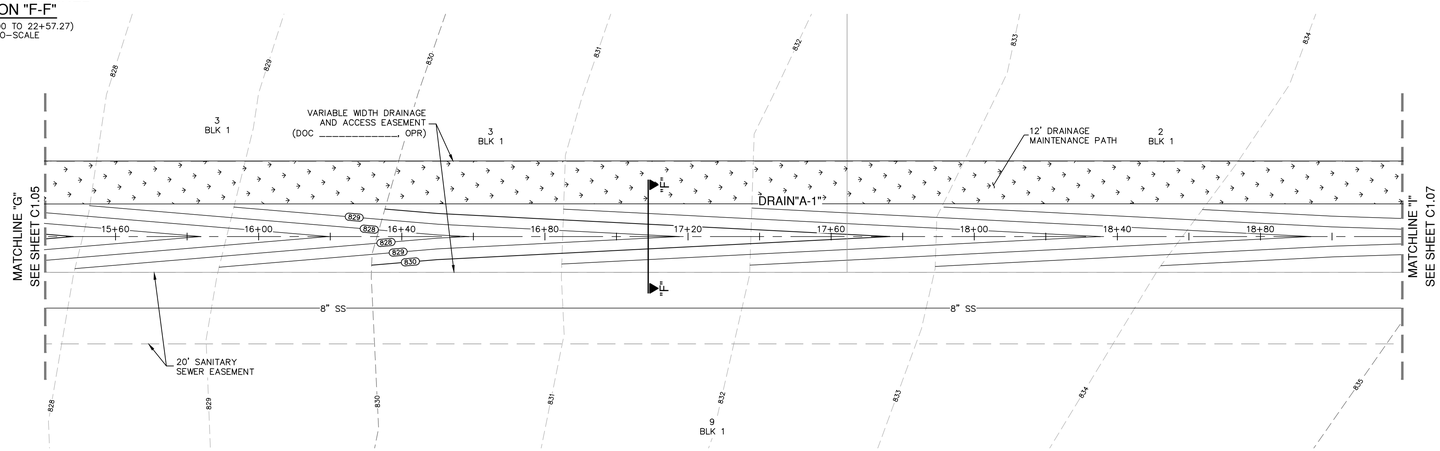
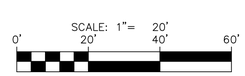


EARTHEN "V" CHANNEL
SECTION "F-F"
(STA. 15+20.00 TO 22+57.27)
NOT-TO-SCALE



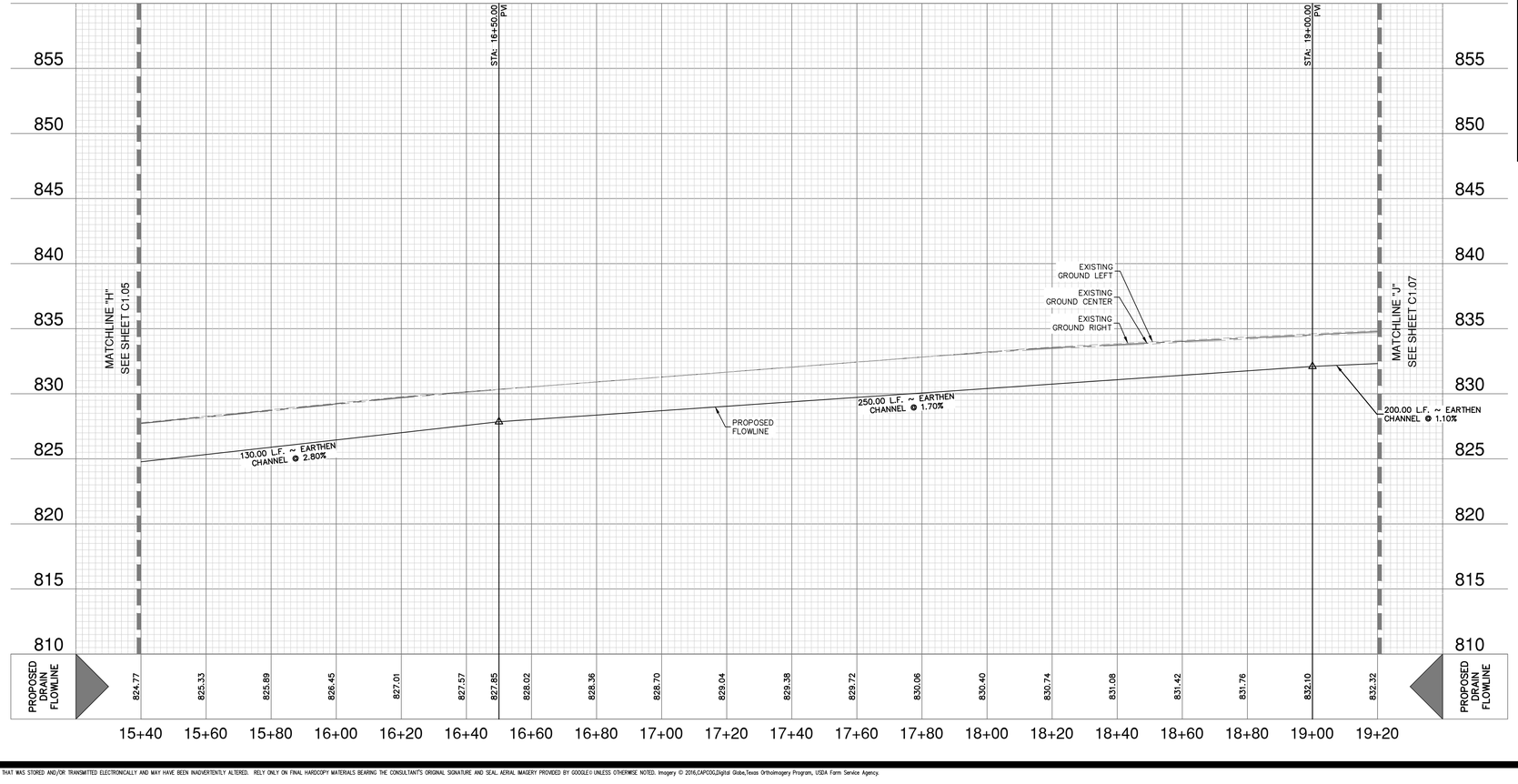


DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR 690
- PROPOSED CONTOUR 690
- EXISTING FIRE HYDRANT
- EXISTING WATER W
- EXISTING UNDERGROUND ELECTRIC UGE
- EXISTING GAS G
- EXISTING SEWER SS
- PROPOSED SEWER SS MANHOLE
- PROPOSED WATER W FIRE HYDRANT
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS G
- PROPOSED UNDERGROUND ELECTRIC UGE
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- EXISTING TREE TO REMAIN

STORM DRAIN "A-1"
STA 15+40.00 TO 19+20.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



HYDRAULIC CALCULATIONS EARTH CHANNEL
STA. 15+20.00 TO 16+50.00

- Q_{25} = 48 CFS
- n = 0.035
- S = 2.80%
- dn_{25} = 1.64 FT
- dn_{25} + Fbrd. = 2.14 FT
- V_{25} = 5.95 FPS
- Q_2 = 23 CFS
- V_2 = 4.99 FPS
- Q_{100} = 68 CFS
- dn_{100} = 1.87 FT
- V_{100} = 6.84 FPS

HYDRAULIC CALCULATIONS EARTH CHANNEL
STA. 16+50.00 TO 19+00.00

- Q_{25} = 48 CFS
- n = 0.035
- S = 1.70%
- dn_{25} = 1.80 FT
- dn_{25} + Fbrd. = 2.30 FT
- V_{25} = 4.94 FPS
- Q_2 = 23 CFS
- V_2 = 4.08 FPS
- Q_{100} = 68 CFS
- dn_{100} = 2.05 FT
- V_{100} = 5.39 FPS

HYDRAULIC CALCULATIONS EARTH CHANNEL
STA. 19+00.00 TO 21+00.00

- Q_{25} = 48 CFS
- n = 0.035
- S = 1.10%
- dn_{25} = 1.95 FT
- dn_{25} + Fbrd. = 2.45 FT
- V_{25} = 4.21 FPS
- Q_2 = 23 CFS
- V_2 = 3.50 FPS
- Q_{100} = 68 CFS
- dn_{100} = 2.22 FT
- V_{100} = 4.60 FPS

DRAINAGE & GRADING NOTES:

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7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.

CAUTION!!

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NO.	REVISION	DATE

8-6-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

STORM DRAIN A-1 - PLAN & PROFILE
STA 15+40.00 TO 19+20.00

PLAT NO.
JOB NO. 30001-81
DATE AUGUST 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C1.06

Date: March 13, 2024, 3:58 PM - User ID: ckowalski
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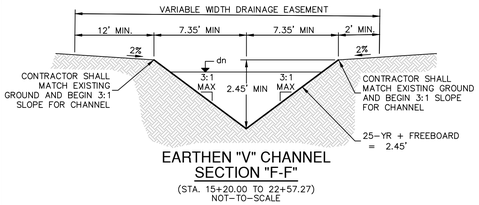
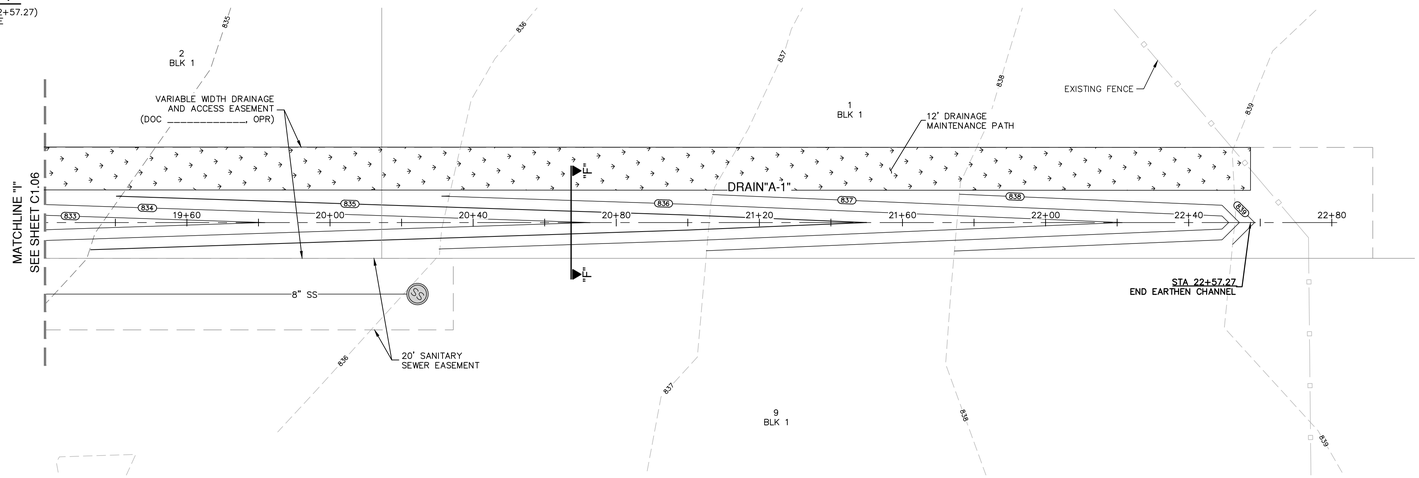
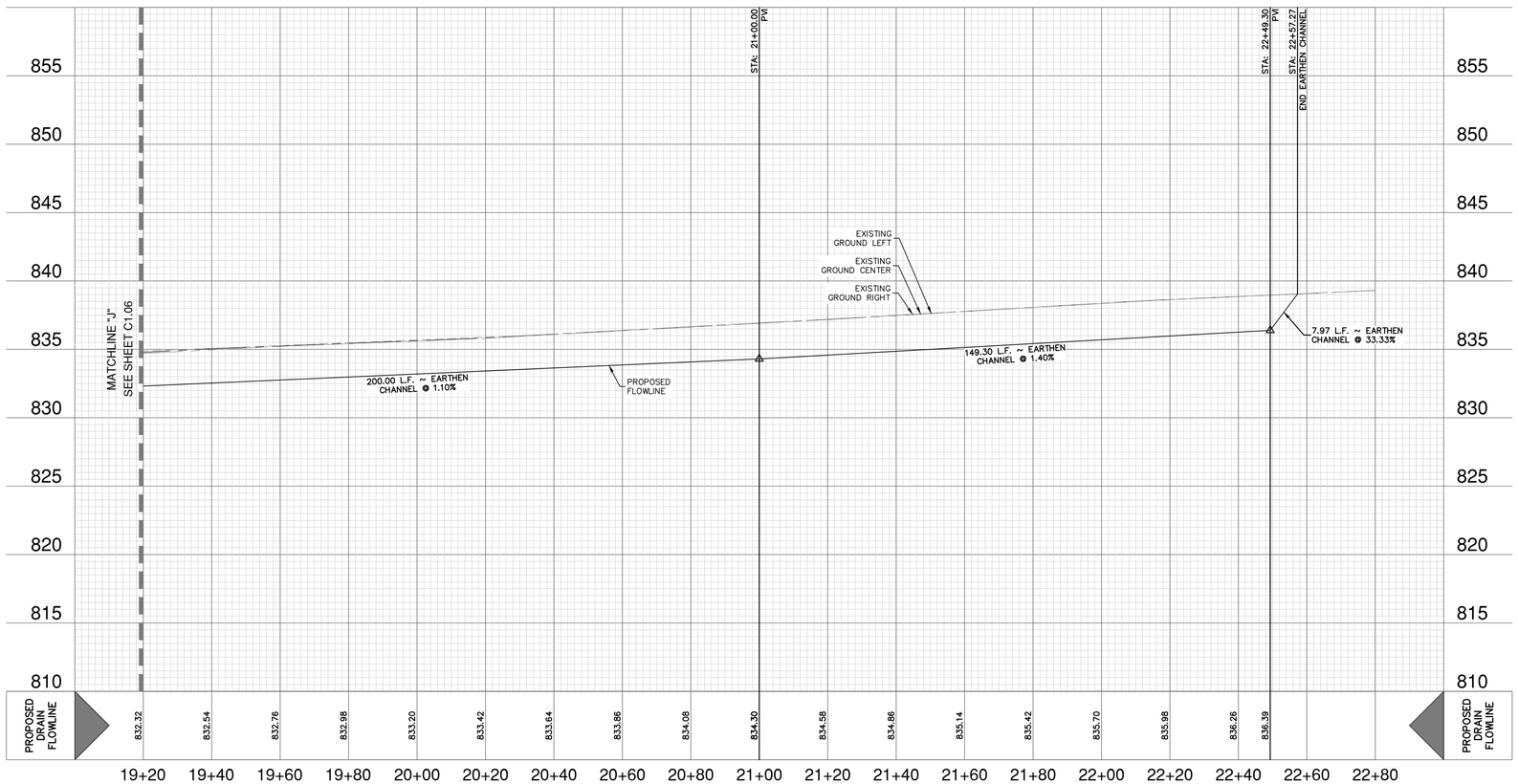


EARTHEN "V" CHANNEL
SECTION "F-F"
(STA. 15+20.00 TO 22+57.27)
NOT-TO-SCALE



STORM DRAIN "A-1"
STA. 19+20.00 TO 22+57.27

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR 690
- PROPOSED CONTOUR 690
- EXISTING FIRE HYDRANT
- EXISTING WATER W
- EXISTING UNDERGROUND ELECTRIC UGE
- EXISTING GAS G
- EXISTING SEWER SS
- PROPOSED SEWER SS MANHOLE
- PROPOSED WATER W FIRE HYDRANT
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS G
- PROPOSED UNDERGROUND ELECTRIC UGE
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- EXISTING TREE TO REMAIN

HYDRAULIC CALCULATIONS EARTH CHANNEL
STA. 19+00.00 TO 21+00.00

Q_{25}	= 48 CFS
n	= 0.035
S	= 1.10%
dn_{25}	= 1.95 FT
dn_{25} + Fbrd.	= 2.45 FT
V_{25}	= 4.21 FPS
Q_2	= 23 CFS
V_2	= 3.50 FPS
Q_{100}	= 68 CFS
dn_{100}	= 2.22 FT
V_{100}	= 4.60 FPS

HYDRAULIC CALCULATIONS EARTH CHANNEL
STA. 21+00.00 TO 22+57.27

Q_{25}	= 48 CFS
n	= 0.035
S	= 1.40%
dn_{25}	= 1.87 FT
dn_{25} + Fbrd.	= 2.37 FT
V_{25}	= 4.58 FPS
Q_2	= 23 CFS
V_2	= 3.80 FPS
Q_{100}	= 68 CFS
dn_{100}	= 2.13 FT
V_{100}	= 5.00 FPS

DRAINAGE & GRADING NOTES:

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6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.

CAUTION!!

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NO.	REVISION	DATE

8-6-2024

STATE OF TEXAS
JOCELYN PEREZ
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TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

STORM DRAIN A-1 - PLAN & PROFILE
STA. 19+20.00 TO 22+57.27

PLAT NO.
JOB NO. 30001-81
DATE AUGUST 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C1.07

Date: March 13, 2024, 3:59 PM - User ID: ckowalski
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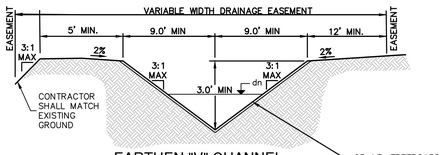
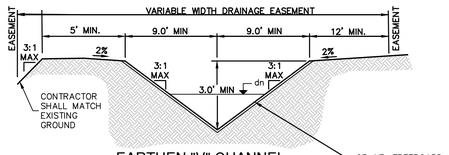
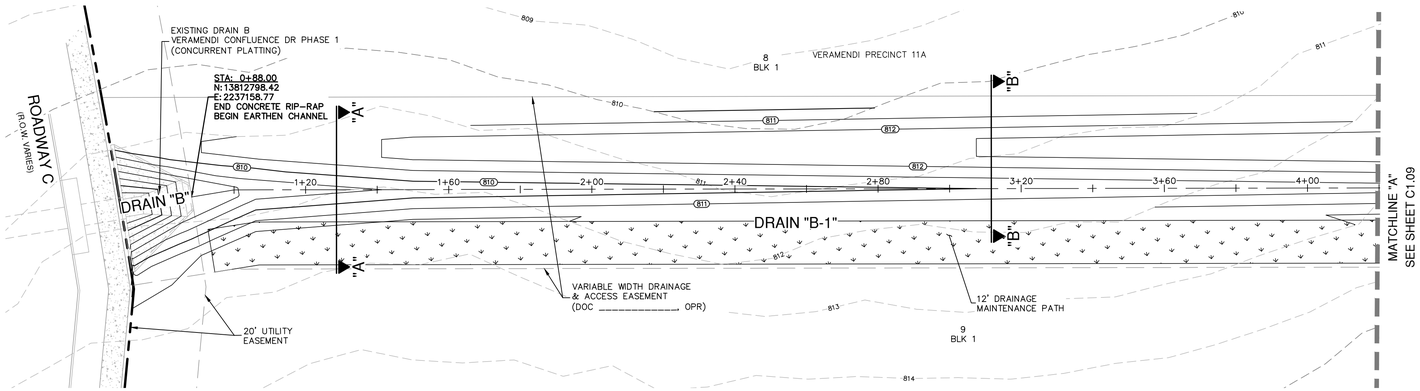


EARTHEN "V" CHANNEL
SECTION "A-A"
(STA. 0+88.00–STA. 1+50.00)
NOT-TO-SCALE

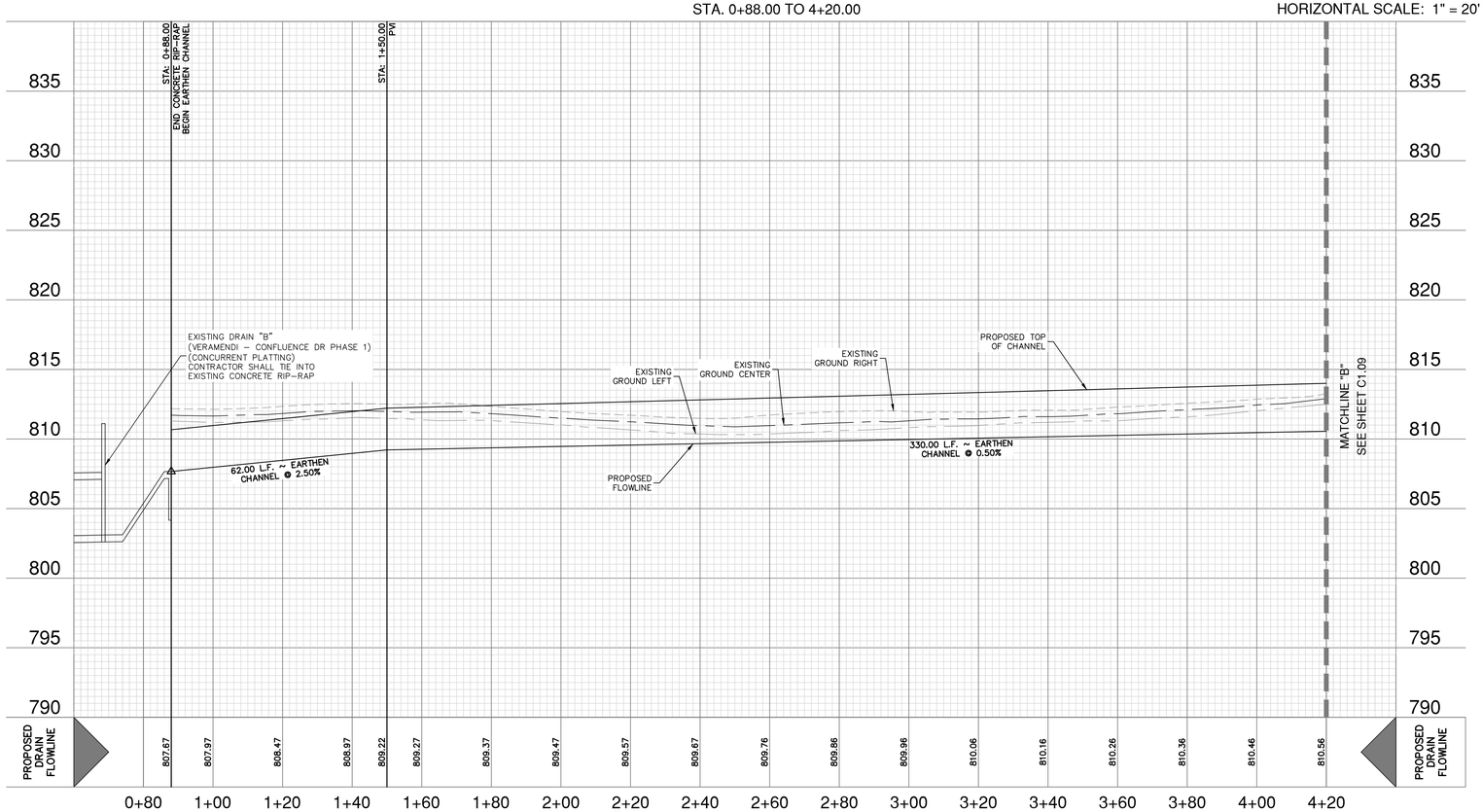


EARTHEN "V" CHANNEL
SECTION "B-B"
(STA. 1+50.00–STA. 4+80.00)
NOT-TO-SCALE



STORM DRAIN "B-1"
STA. 0+88.00 TO 4+20.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690 —
- PROPOSED CONTOUR — 690 —
- EXISTING WATER — W — (EXISTING FIRE HYDRANT)
- EXISTING UNDERGROUND ELECTRIC — UGE —
- EXISTING GAS — G —
- EXISTING SEWER — SS — (MANHOLE)
- PROPOSED SEWER — SS —
- PROPOSED WATER — W — (FIRE HYDRANT)
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS — G —
- PROPOSED UNDERGROUND ELECTRIC — UGE —
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- EXISTING TREE
- MAINTENANCE ACCESS PATH

HYDRAULIC CALCULATIONS
EARTH CHANNEL
STA. 0+88.00 TO 1+50.00

Q_{25}	= 59 CFS
n	= 0.035
S	= 2.50%
dn_{25}	= 1.89 FT
dn_{25} + Fbrd.	= 2.39 FT
V_{25}	= 6.00 FPS
Q_2	= 26 CFS
V_2	= 4.90 FPS
Q_{100}	= 89 CFS
dn_{100}	= 2.23 FT
V_{100}	= 6.66 FPS

HYDRAULIC CALCULATIONS
EARTH CHANNEL
STA. 1+50.00 TO 4+80.00

Q_{25}	= 59 CFS
n	= 0.035
S	= 0.50%
dn_{25}	= 2.44 FT
dn_{25} + Fbrd.	= 2.94 FT
V_{25}	= 3.31 FPS
Q_2	= 26 CFS
V_2	= 2.70 FPS
Q_{100}	= 89 CFS
dn_{100}	= 2.85 FT
V_{100}	= 3.67 FPS

NOTE:
CHANNEL SIZED BASED ON EXISTING CONDITIONS C-VALUE CALCULATIONS.

DRAINAGE & GRADING NOTES:

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7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.

CAUTION!!
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

TRENCH EXCAVATION SAFETY PROTECTION:
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NO.	REVISION	DATE

2-14-2025

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

STORM DRAIN B-1 - PLAN & PROFILE
STA. 0+88.00 TO 4+20.00

PLAT NO.
JOB NO. 30001-81
DATE FEBRUARY 2025
DESIGNER CP
CHECKED CL DRAWN CP
SHEET C1.08

Date: March 13, 2024, 2:07 PM — User ID: glattmer
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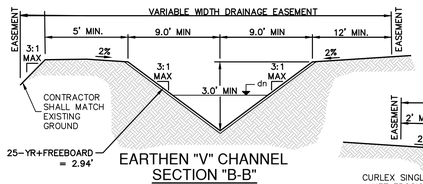
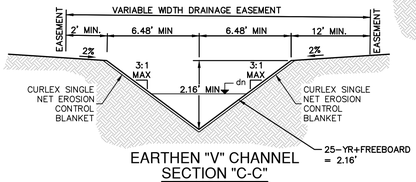
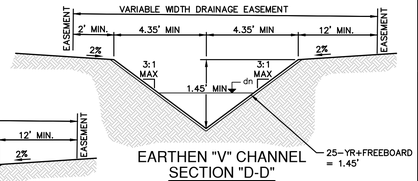


EARTHEN "V" CHANNEL SECTION "B-B"
(STA. 1+50.00–STA. 4+80.00)
NOT-TO-SCALE



EARTHEN "V" CHANNEL SECTION "C-C"
(STA. 4+80.00–STA. 5+70.00)
NOT-TO-SCALE



EARTHEN "V" CHANNEL SECTION "D-D"
(STA. 5+70.00–STA. 7+56.77)
NOT-TO-SCALE

HYDRAULIC CALCULATIONS
EARTH CHANNEL
STA. 1+50.00 TO 4+80.00

Q_{25}	= 59 CFS
n	= 0.035
S	= 0.50%
dn_{25}	= 2.44 FT
dn_{25} + Fbrd.	= 2.94 FT
V_{25}	= 3.31 FPS
Q_2	= 26 CFS
V_2	= 2.70 FPS
Q_{100}	= 89 CFS
dn_{100}	= 2.85 FT
V_{100}	= 3.67 FPS

HYDRAULIC CALCULATIONS
EARTH CHANNEL
STA. 4+80.00 TO 5+70.00

Q_{25}	= 59 CFS
n	= 0.035
S	= 3.96%
dn_{25}	= 1.66 FT
dn_{25} + Fbrd.	= 2.16 FT
V_{25}	= 7.19 FPS
Q_2	= 26 CFS
V_2	= 5.86 FPS
Q_{100}	= 89 CFS
dn_{100}	= 1.93 FT
V_{100}	= 7.97 FPS

HYDRAULIC CALCULATIONS
EARTH CHANNEL
STA. 5+70.00 TO 5+80.00

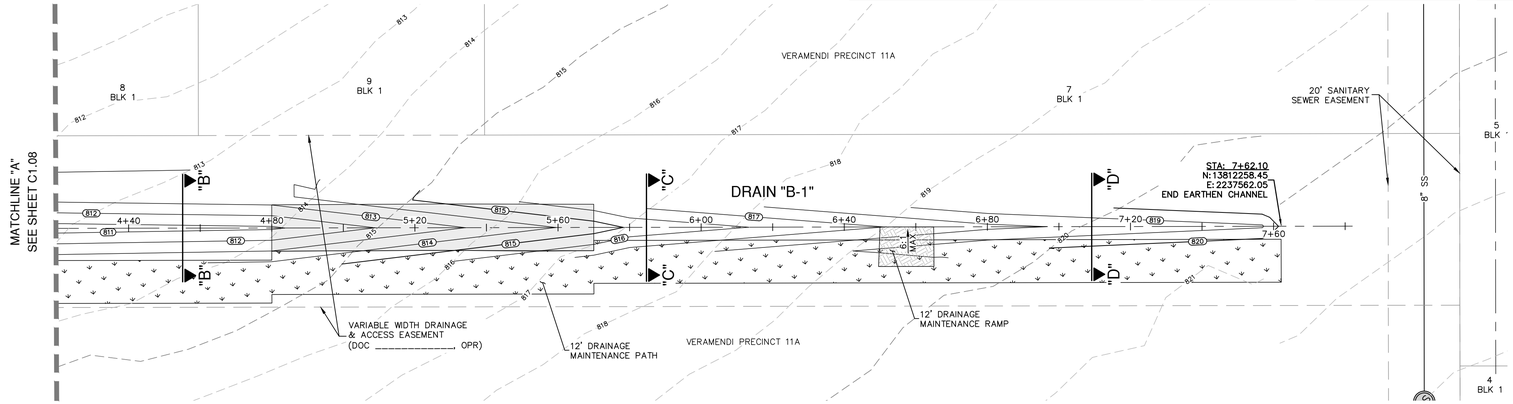
Q_{25}	= 8 CFS
n	= 0.035
S	= 7.00%
dn_{25}	= 0.71 FT
dn_{25} + Fbrd.	= 1.21 FT
V_{25}	= 5.40 FPS
Q_2	= 3 CFS
V_2	= 4.23 FPS
Q_{100}	= 11 CFS
dn_{100}	= 0.79 FT
V_{100}	= 5.85 FPS

HYDRAULIC CALCULATIONS
EARTH CHANNEL
STA. 5+80.00 TO 6+80.00

Q_{25}	= 8 CFS
n	= 0.035
S	= 2.64%
dn_{25}	= 0.85 FT
dn_{25} + Fbrd.	= 1.35 FT
V_{25}	= 3.69 FPS
Q_2	= 3 CFS
V_2	= 2.93 FPS
Q_{100}	= 11 CFS
dn_{100}	= 0.95 FT
V_{100}	= 4.06 FPS

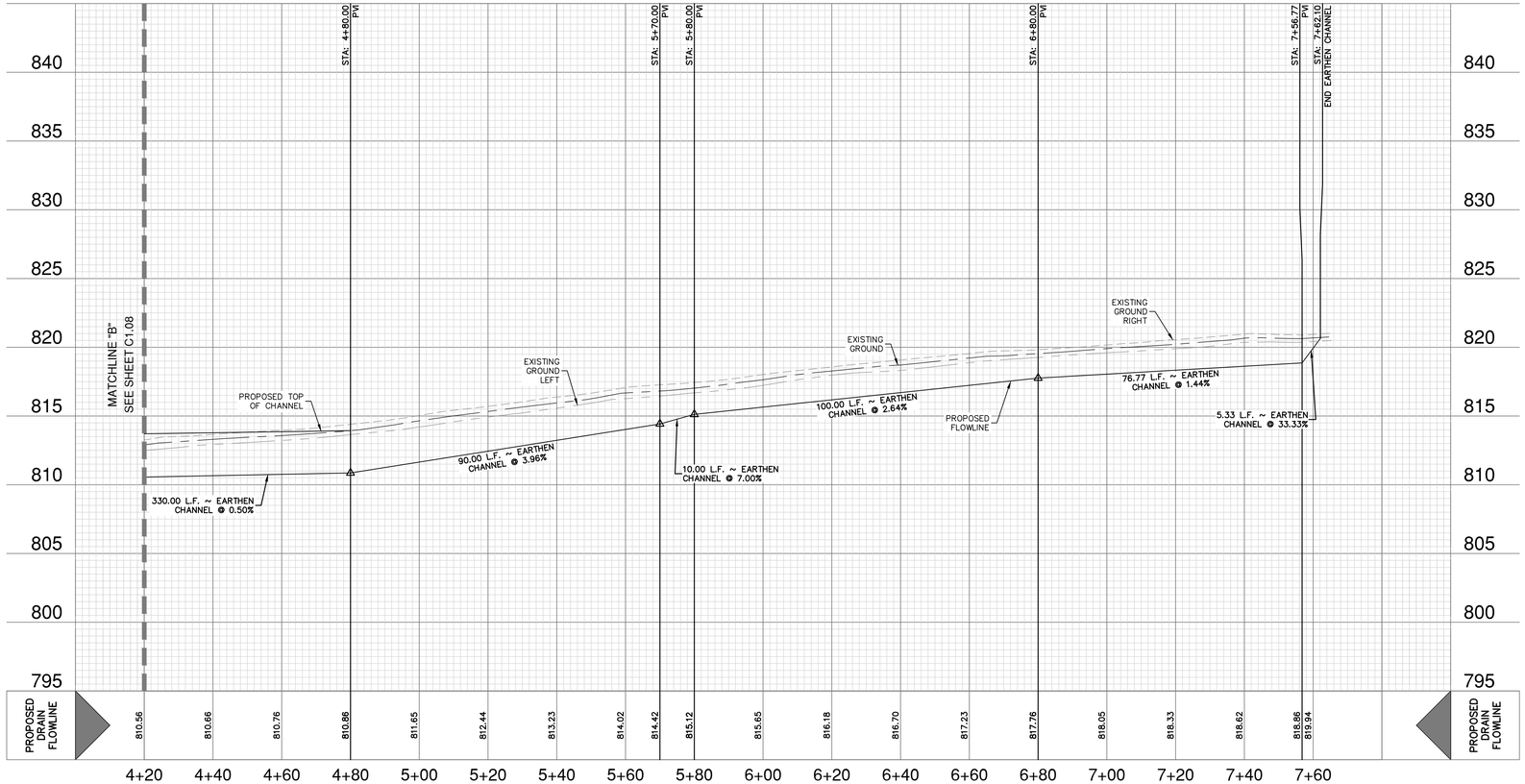
HYDRAULIC CALCULATIONS
EARTH CHANNEL
STA. 6+80.00 TO 7+56.77

Q_{25}	= 8 CFS
n	= 0.035
S	= 1.44%
dn_{25}	= 0.95 FT
dn_{25} + Fbrd.	= 1.45 FT
V_{25}	= 2.95 FPS
Q_2	= 3 CFS
V_2	= 2.34 FPS
Q_{100}	= 11 CFS
dn_{100}	= 1.07 FT
V_{100}	= 3.23 FPS



STORM DRAIN "B-1"
STA. 4+20.00 TO 7+62.10

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 20'



SCALE: 1"= 20'
0' 20' 40' 60'

DRAINAGE LEGEND

- PROJECT LIMITS
- 100 YR FLOODPLAIN
- EXISTING CONTOUR — 690 —
- PROPOSED CONTOUR — 690 —
- EXISTING WATER — EXISTING FIRE HYDRANT — W —
- EXISTING UNDERGROUND ELECTRIC — UGE —
- EXISTING GAS — G —
- EXISTING SEWER — SS — MANHOLE
- PROPOSED SEWER — SS —
- PROPOSED WATER — FIRE HYDRANT — W —
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS — G —
- PROPOSED UNDERGROUND ELECTRIC — UGE —
- FLOW ARROW
- CURLEX SINGLE NET EROSION CONTROL BLANKETS
- EXISTING TREE
- MAINTENANCE ACCESS PATH

NOTE:
CHANNEL SIZED BASED ON EXISTING CONDITIONS C–VALUE CALCULATIONS.

DRAINAGE & GRADING NOTES:

1. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
2. ALL CONCRETE FOR TXDOT DRAINAGE STRUCTURES SHALL MEET TXDOT SPECIFICATIONS. ALL OTHER CONCRETE SHALL BE CLASS "A" 3000 PSI CYLINDER STRENGTH IN 28 DAYS.
3. REFERENCE DRAINAGE DETAILS FOR PIPE TRENCH DETAILS, BOX CULVERT, HEADWALL, AND WINGWALL CONSTRUCTION DETAILS, AND BOX CULVERT BEDDING AND EXCAVATION LIMITS.
4. CONTRACTOR SHALL GROUT ALL CURB INLETS AND JUNCTION BOXES TO PROVIDE FOR POSITIVE DRAINAGE.
5. EARTHEN CHANNELS WILL BE VEGETATED BY SEEDING OR SODDING. 85% OF THE CHANNEL SURFACE MUST HAVE ESTABLISHED VEGETATION BEFORE THE CITY OF NEW BRAUNFELS WILL ACCEPT.
6. CONTRACTOR SHALL MATCH TOP OF CHANNEL TO NATURAL GROUND AND MAINTAIN A MINIMUM CHANNEL DEPTH OF "D" AS SHOWN IN THE PROFILE.
7. ALL RCP SHALL BE AASHTO M170 CLASS III RCP.

CAUTION!!
CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

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NO.	REVISION	DATE

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER
2–14–2025

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

STORM DRAIN B-1 - PLAN & PROFILE
STA. 4+20.00 TO 7+62.10

PLAT NO. _____
JOB NO. 30001-81
DATE FEBRUARY 2025
DESIGNER CP
CHECKED CP DRAWN CP
SHEET C1.09

Date: March 13, 2024, 11:51 AM – User ID: hhenke
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CAUTION!!!:
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NBU PRESSURE ZONE:
PROPOSED WATER MAIN IS WITHIN NBU PRESSURE ZONE 4.

NOTE:
FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT.

Pipe Restraint Length Calculations

Source: EBAA Iron, Restraint Length Calculator v 7.1.2

Assumptions:

Soil Type	Safety Factor	Trench Type	Depth of Bury	Test Pressure
CH	1.5 to 1.0	5	4 ft	200 psi

Minimum Restraint Lengths in Feet

	12" Waterline	
	Main	Branch
Horizontal Bends		
11.25 Degrees		
22.5 Degrees		
45 Degrees	17	
Misc. Fittings		
8"x6" Tee		
8"x8" Tee		
12"x6" Tee		59 (6" Branch)
12"x8" Tee		
Dead End/ Gate Valve	110	
16"x12" Cross		
16"x12" Reducer		

Vertical Bends (assumes low side depth of 10)

	High Side	Low Side
11.25 Degrees	11	2
22.5 Degrees	22	4
45 Degrees	46	7

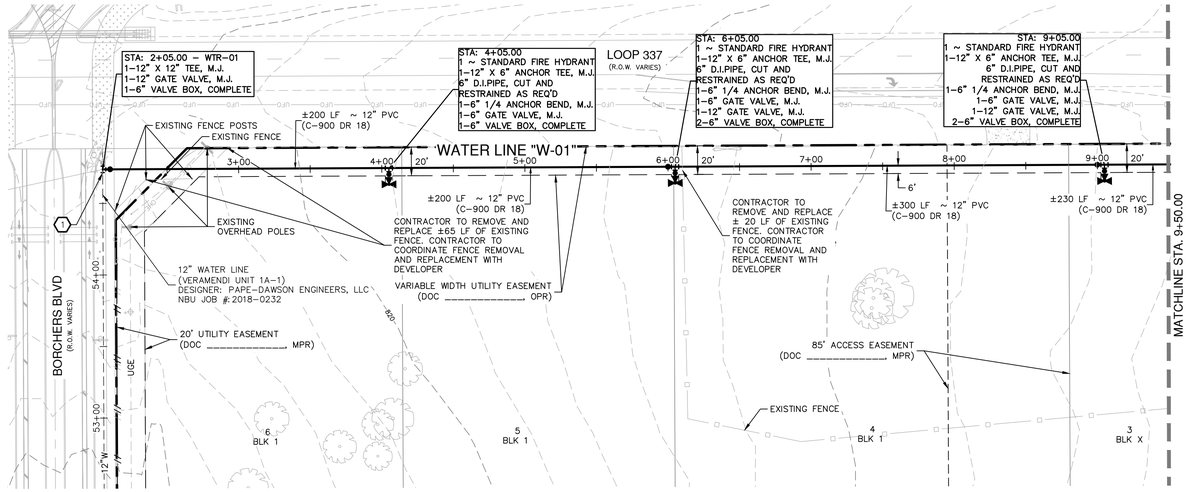
WATER (NBU JOB NO. W-245133)		
ITEM	UNIT	QUANTITY
12" WATER LINE	LF	1451
LUEs	EA	48
FIRE HYDRANT	EA	1
6" GATE VALVE	EA	1
12" GATE VALVE	EA	4
2" SERVICE LINE WITH 1.5" METER	EA	2
2" SERVICE LINE WITH 2" METER	EA	1

1 FOR CHLORINATION INJECTION
2 – 1" CORPORATION STOP, C.C.X.I.P
1 – 1" COPPER TUBING, CUT AS REQUIRED
2 – 1" COMP. 1 1/4 COUPLING, CORP. STOP
2 – 1 1/4" THD. SOLID CAPS, THR.

12" VALVE SHALL REMAIN CLOSED UNTIL NEW MAINS HAVE BEEN DISINFECTED BY CONTRACTOR AND ACCEPTED BY NBU

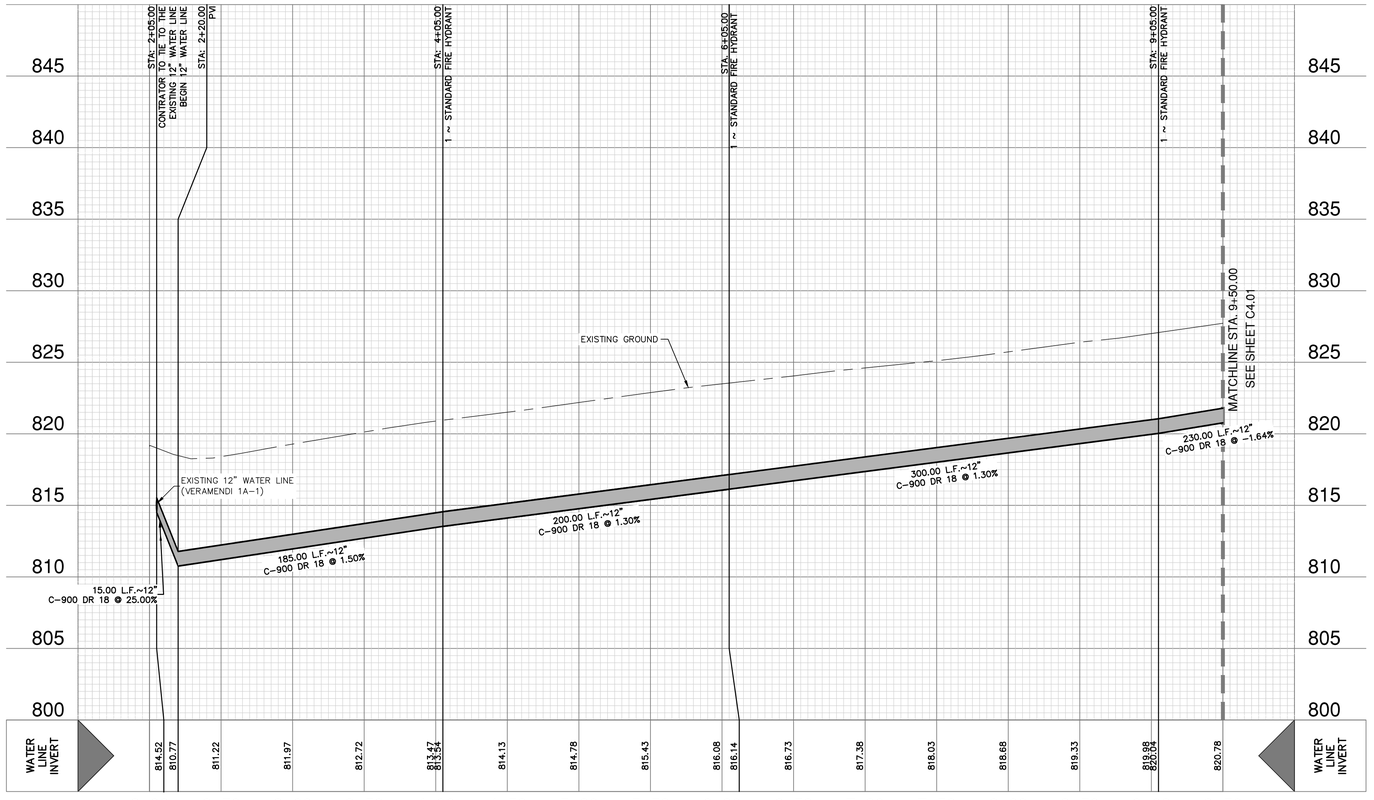
CONTRACTOR SHALL TIE PROPOSED 12" MAIN TO EXISTING 12" PVC C-900 DR 18 MAIN AND PROVIDE VERTICAL BENDS AS NEEDED AFTER DISINFECTION BY CONTRACTOR AND ACCEPTANCE BY NBU

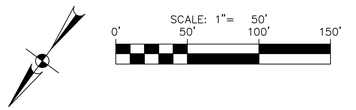
2" TEMPORARY BLOWOFF ASSEMBLY (SEE NBU STD DWG 253)



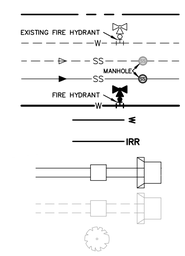
12 INCH WATER LINE "W-01"
STA. 2+05.00 TO 9+50.00

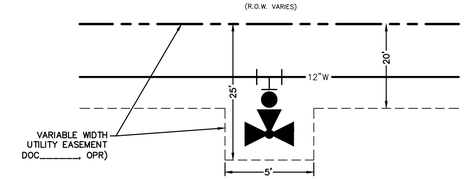
VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'





WATER LEGEND





TYPICAL EASEMENT DETAIL FOR FIRE HYDRANT

NOT TO SCALE

JOINT RESTRAINT NOTE:

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. CONTRACTOR SHALL USE PIPE RESTRAINT LENGTH TABLE PROVIDED ON THIS SHEET. IT IS THE CONTRACTORS'S RESPONSIBILITY TO COORDINATE JOINT RESTRAINTS WITH THE DEVELOPER'S ENGINEER IF CHANGES OCCUR.

NOTE:

1. ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS SHALL HAVE A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY (R/P) INSTALLED PRIOR TO PLACEMENT OF METER. ALL NEW FACILITIES ARE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF THE LATEST NBU BACKFLOW POLICY.
2. ALL GATE VALVES 16" AND SMALLER SHALL BE RESILIENT SEATED GATE VALVES.

CITY OF NEW BRAUNFELS NOTES

1. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
2. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
3. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
4. UTILITY TRENCH COMPACTION – ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

CAUTION!!

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NO.	REVISION	DATE

11-3-2024
STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
12 INCH WATER LINE W-01 - PLAN & PROFILE
STA. 2+05.00 TO 9+50.00

PLAT NO.
JOB NO. 30001-81
DATE NOVEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C4.00

Date: March 13, 2024, 10:42 AM – User ID: ckowalski
File: P:\300\01\81\Design\Civil\W-01-30001-81.dwg

CAUTION!!!:
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NBU PRESSURE ZONE:
PROPOSED WATER MAIN IS WITHIN NBU PRESSURE ZONE 4.

NOTE:
FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT.

Pipe Restraint Length Calculations

Source: EBAA Iron, Restraint Length Calculator v 7.1.2

Assumptions:

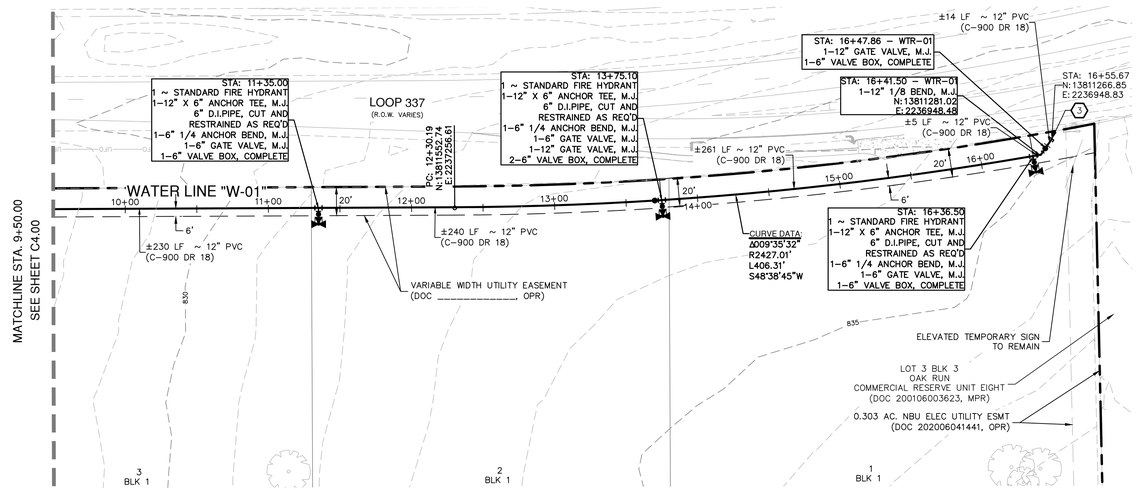
Soil Type	Safety Factor	Trench Type	Depth of Bury	Test Pressure
CH	1.5 to 1.0	5	4 ft	200 psi

Minimum Restraint Lengths in Feet

	12" Waterline	
	Main	Branch
Horizontal Bends		
11.25 Degrees		
22.5 Degrees		
45 Degrees	17	
Misc. Fittings		
8"x6" Tee		
8"x8" Tee		
12"x6" Tee		59 (6" Branch)
12"x8" Tee		
Dead End/ Gate Valve	110	
16"x12" Cross		
16"x12" Reducer		

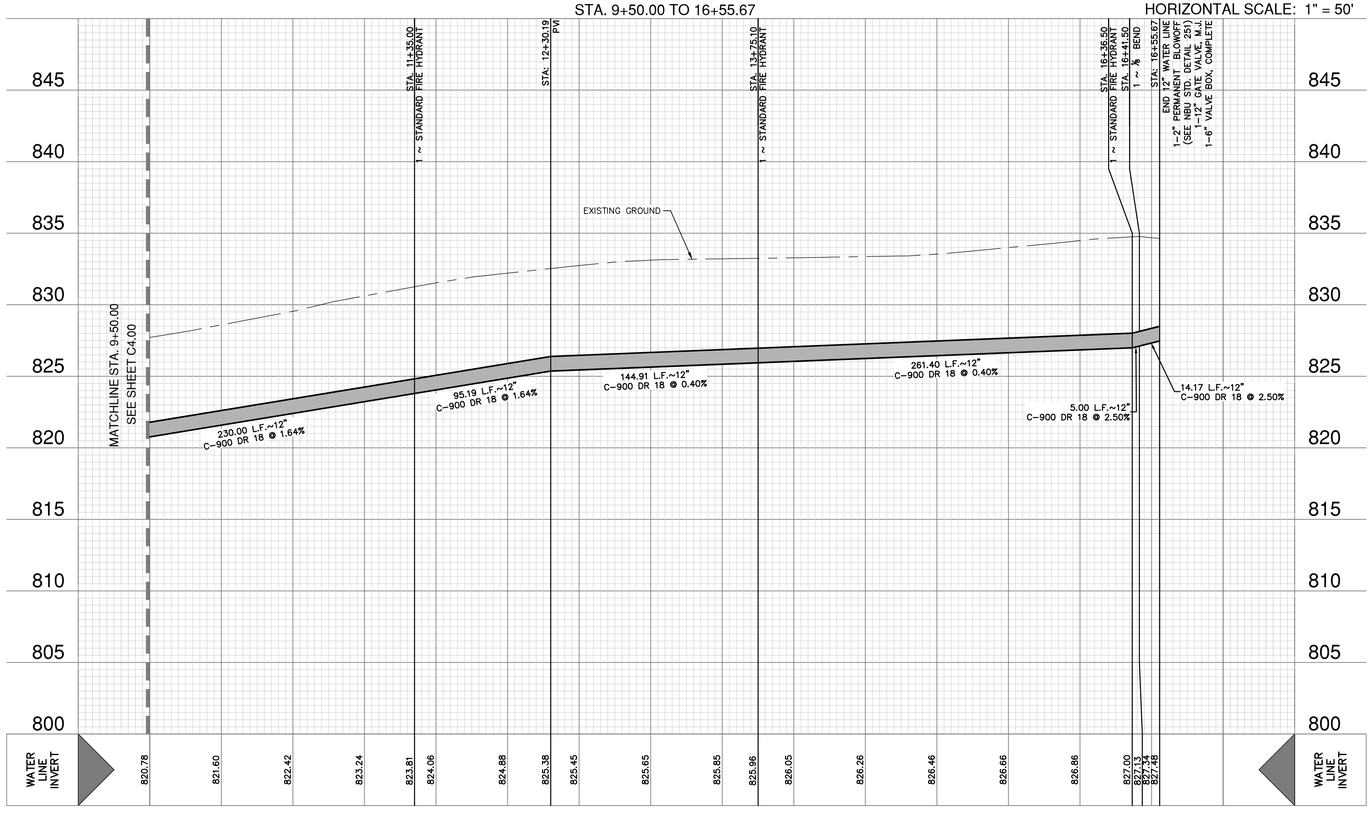
Vertical Bends (assumes low side depth of 10)

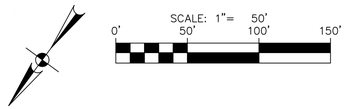
	High Side	Low Side
11.25 Degrees	11	2
22.5 Degrees	22	4
45 Degrees	46	7



12 INCH WATER LINE "W-01"
STA. 9+50.00 TO 16+55.67

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'

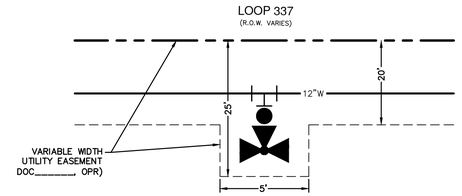




WATER LEGEND

PROJECT LIMITS
EXISTING WATER
EXISTING SEWER
PROPOSED SEWER
PROPOSED WATER
PROPOSED SINGLE SERVICE
SINGLE IRRIGATION SERVICE (REF. PLAN VIEW FOR SIZE)
PROPOSED STORM DRAIN
EXISTING STORM DRAIN
EXISTING TREE TO REMAIN
EXISTING FIRE HYDRANT
MANHOLE
FIRE HYDRANT
IRR

(3) 12" VALVE SHALL REMAIN CLOSED UNTIL NEW MAINS HAVE BEEN DISINFECTED BY CONTRACTOR AND ACCEPTED BY NBU
2" PERMANENT BLOWOFF ASSEMBLY (SEE NBU STD. DETAIL 251)
1-12" GATE VALVE, M.J.
1-6" VALVE BOX, COMPLETE



TYPICAL EASEMENT DETAIL FOR FIRE HYDRANT

NOT TO SCALE

JOINT RESTRAINT NOTE:

CONTRACTOR SHALL INSTALL RETAINER GLANDS AT ALL FITTINGS AND PROVIDE JOINT RESTRAINING HARNESSES OR FIELD LOCK GASKETS AT ALL JOINTS WITHIN THE LENGTH SHOWN. CONTRACTOR SHALL INSURE THAT ALL TEES, BENDS, VALVES, ETC. HAVE A MINIMUM OF 5 FT OF PIPE WITH NO JOINTS ON EACH SIDE OF THE FITTING. CONTRACTOR SHALL USE PIPE RESTRAINT LENGTH TABLE PROVIDED ON THIS SHEET. IT IS THE CONTRACTORS'S RESPONSIBILITY TO COORDINATE JOINT RESTRAINTS WITH THE DEVELOPER'S ENGINEER IF CHANGES OCCUR.

NOTE:

1. ALL IRRIGATION SERVICES WITHIN RESIDENTIAL AREAS SHALL HAVE A REDUCED PRESSURE BACKFLOW PREVENTION ASSEMBLY (R/P) INSTALLED PRIOR TO PLACEMENT OF METER. ALL NEW FACILITIES ARE REQUIRED TO COMPLY WITH THE REQUIREMENTS OF THE LATEST NBU BACKFLOW POLICY.
2. ALL GATE VALVES 16" AND SMALLER SHALL BE RESILIENT SEATED GATE VALVES.

CITY OF NEW BRAUNFELS NOTES

1. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
2. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
3. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
4. UTILITY TRENCH COMPACTION – ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NO.	REVISION	DATE

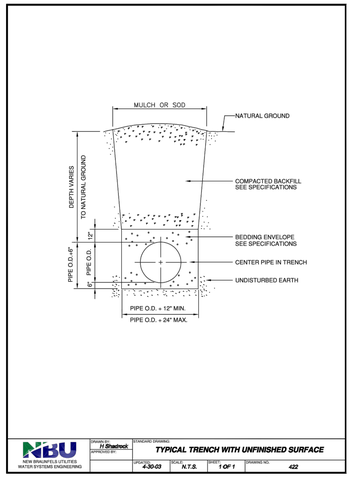
11-3-2024
STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

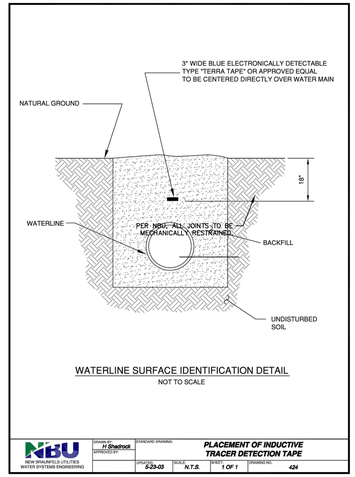
VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
12 INCH WATER LINE W-01 - PLAN & PROFILE STA. 9+50.00 TO 16+55.67

PLAT NO.
JOB NO. 30001-81
DATE NOVEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C4.01

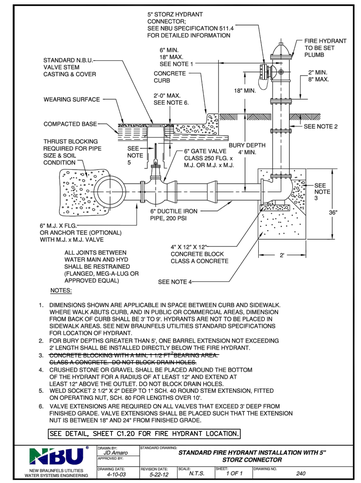
Date: March 13, 2024, 10:43 AM – User ID: skowalski
File: P:\300\01\81\Design\Civil\W-01-30001-81.dwg



WATER PIPE LAID IN TRENCH
(OUTSIDE OF PAVEMENT)



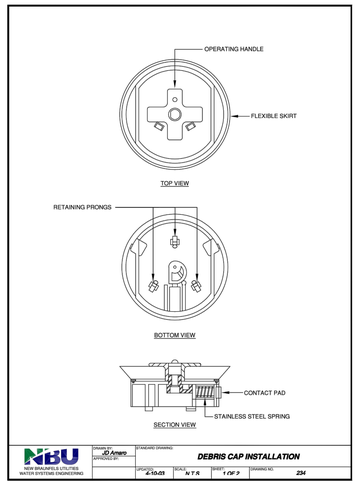
WATERLINE SURFACE IDENTIFICATION DETAIL
NOT TO SCALE

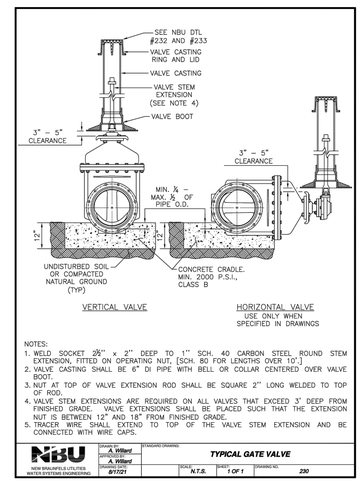


NOTES:

1. DIMENSIONS SHOWN ARE APPLICABLE IN SPACE BETWEEN CURB AND SIDEWALK WHERE WALK ABUTS CURB, AND IN PUBLIC OR COMMERCIAL AREAS, DIMENSION FROM BACK OF CURB SHALL BE 3' TO 6'. HYDRANTS ARE NOT TO BE PLACED IN SIDEWALK AREAS. SEE NEW BRAUNFELS UTILITIES STANDARD SPECIFICATIONS FOR LOCATION OF HYDRANT.
2. FOR BURY DEPTHS GREATER THAN 5', ONE BARREL EXTENSION NOT EXCEEDING 2' LENGTH SHALL BE INSTALLED DIRECTLY BELOW THE FIRE HYDRANT.
3. ~~CONCRETE BLOCKING WITH A MIN. 1.12 FT² BEARING AREA. CLASS A CONCRETE. DO NOT BLOCK DRAIN HOLES.~~
4. CRUSHED STONE OR GRAVEL SHALL BE PLACED AROUND THE BOTTOM OF THE HYDRANT FOR A RADIUS OF AT LEAST 12" AND EXTEND AT LEAST 12" ABOVE THE OUTLET. DO NOT BLOCK DRAIN HOLES.
5. WELD SOCKET 2 1/2" X 2" DEEP TO 1" SCH. 40 ROUND STEM EXTENSION, FITTED ON OPERATING NUT, SCH. 80 FOR LENGTHS OVER 10'.
6. VALVE EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 18" AND 24" FROM FINISHED GRADE.

SEE DETAIL, SHEET C1.20 FOR FIRE HYDRANT LOCATION.



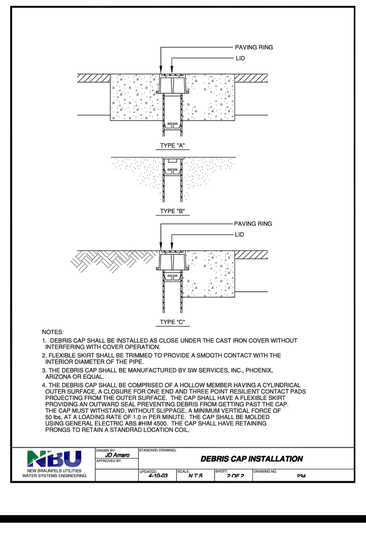


VERTICAL VALVE

HORIZONTAL VALVE
USE ONLY WHEN SPECIFIED IN DRAWINGS

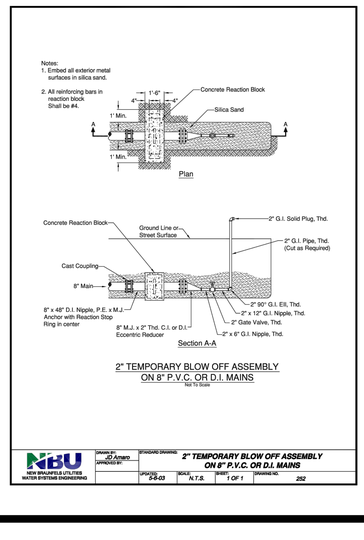
NOTES:

1. WELD SOCKET 2½" x 2" DEEP TO 1" SCH. 40 CARBON STEEL ROUND STEM EXTENSION, FITTED ON OPERATING NUT. [SCH. 80 FOR LENGTHS OVER 10'.]
2. VALVE CASTING SHALL BE 6" DI PIPE WITH BELL OR COLLAR CENTERED OVER VALVE BOOT.
3. NUT AT TOP OF VALVE EXTENSION ROD SHALL BE SQUARE 2" LONG WELDED TO TOP OF ROD.
4. VALVE STEM EXTENSIONS ARE REQUIRED ON ALL VALVES THAT EXCEED 3' DEEP FROM FINISHED GRADE. VALVE EXTENSIONS SHALL BE PLACED SUCH THAT THE EXTENSION NUT IS BETWEEN 12" AND 18" FROM FINISHED GRADE.
5. TRACER WIRE SHALL EXTEND TO TOP OF THE VALVE STEM EXTENSION AND BE CONNECTED WITH WIRE CAPS.



NOTES:

1. DEBRIS CAP SHALL BE INSTALLED AS CLOSE UNDER THE CAST IRON COVER WITHOUT INTERFERING WITH COVER OPERATION.
2. FLEXIBLE SKIRT SHALL BE TRIMMED TO PROVIDE A SMOOTH CONTACT WITH THE INTERIOR DIAMETER OF THE PIPE.
3. THE DEBRIS CAP SHALL BE MANUFACTURED BY SW SERVICES, INC., PHOENIX, ARIZONA OR EQUAL.
4. THE DEBRIS CAP SHALL BE COMPRISED OF A HOLLOW MEMBER HAVING A CYLINDRICAL OUTER SURFACE, A CLOSURE FOR ONE END AND THREE POINT RESILIENT CONTACT PADS PROJECTING FROM THE OUTER SURFACE. THE CAP SHALL HAVE A FLEXIBLE SKIRT PROVIDING AN OUTWARD SEAL PREVENTING DEBRIS FROM GETTING PAST THE CAP. THE CAP MUST WITHSTAND, WITHOUT SLIPPAGE, A MINIMUM VERTICAL FORCE OF 50 lbs. AT A LOADING RATE OF 1.0 in PER MINUTE. THE CAP SHALL BE MOLDED USING GENERAL ELECTRIC ABS #HIM 4500. THE CAP SHALL HAVE RETAINING PRONGS TO RETAIN A STANDRAD LOCATION COIL.



2" TEMPORARY BLOW OFF ASSEMBLY
ON 8" P.V.C. OR D.I. MAINS
No Te Scale

CITY OF NEW BRAUNFELS NOTES

1. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
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FLOODPLAIN NOTE

1. NO PORTION OF THIS PROJECT IS WITHIN AN INDICATED SPECIAL FLOOD HAZARD ZONE ACCORDING TO THE FEMA FIRM MAP NO. 48091C0435F EFFECTIVE DATE 9/2/2009.

NOTES:

PER NBU WATER NOTES (DATED 5/16/19)

7. INITIAL BACKFILL OF WATER LINES SHALL BE MANUFACTURED SAND OR PEA GRAVEL AS PER NBU SYSTEMS CONNECTION & CONSTRUCTION POLICY.
8. SECONDARY BACKFILL OF WATER LINES SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH, NO ROCKS OR STONES HAVING ANY DIMENSION LARGER THAN 6 INCHES AT THE LARGEST DIMENSION.

NO.	REVISION	DATE

5–3–2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800
102 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5633

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
WATER DISTRIBUTION DETAILS

PLAT NO.
JOB NO. 30001–81
DATE MAY 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C4.10

Date: March 13, 2024, 1:24 PM – User ID: carcher
File: P:\300\01\81\Design\Civil\WTD1–30001–81.dwg

General Notes:

1. All materials and construction procedures within the scope of the project shall be approved by New Braunfels Utilities and comply with the current "New Braunfels Utilities Water Systems Connection/Construction Policy".
2. Contractor shall not proceed with any pipe installation work until they obtain a copy of the plans from the Consultant or Engineer and notify NBU Water Systems Engineering at 830-608-8971 with at least two (2) working days (48 hours) notice. WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A NOTICE TO PROCEED FROM NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
3. The Developer dedicates the water / wastewater mains upon completion by the Contractor and acceptance by the New Braunfels Utilities Water System. NBU will own and maintain said water / wastewater mains which are located within platted utility easements or public ROW of proposed developments. (As applicable).
4. Contractor agrees to assume sole and complete responsibility for job site conditions during the construction of the project, including safety of all persons and property. This requirement shall apply continuously and not be limited to normal working hours. The contractor shall defend, indemnify and hold the owners and the engineer and his employees, partners officers, directors, or consultants harmless from any and all liability, real or alleged, in connection with the performance of the work on this project, excepting from liability arising from sole negligence of the owner or engineer, engineer's directors, officers, employees, or consultants.
5. Contractor to contact the engineer-of-record (EOR) for any field changes. Any revisions or changes to the approved construction plans will require additional approval by NBU in writing.
6. Contractor and / or contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA standards governing the presence and activities of individuals working in and around trench excavation.
7. Contractor shall be responsible for restoring to its original or better condition, any damages done to existing fences, curbs, streets, driveways, landscaping and structures, and existing utilities (not adjusted on plans). Cost of Restorations, if any, shall be the contractor's entire expense.
8. The Contractor shall avoid cutting roots larger than one inch in diameter when excavating near existing trees. Excavation in vicinity of trees shall proceed with caution.
9. Contractor shall procure all permits and licenses, pay all charges, fees and taxes and give all notices necessary and incidental to the due and lawful prosecution of the work.

10. No extra payment shall be allowed for work called for on the plans but not included on the bid schedule. This incidental work will be required and shall be included under the pay item to which it relates.
11. Contractor is responsible for removal of all waste materials upon project completion. The contractor shall not permanently place any waste materials in the 100-year flood plain without first obtaining an approved flood plain development permit.
12. The contractor shall not place any materials on the recharge zone of the Edwards aquifer without an approved water pollution abatement plan from the TCEQ 31 TAC 313.4 and 31 TAC 313.9.
13. Barricades and warning signs shall conform to the "Texas manual on uniform traffic control devices" and shall be located to provide maximum protection to the public as well as construction personnel and equipment while providing continuous traffic flow at all times during construction. The contractor is responsible for maintaining all devices during construction.
14. Contractor is required to verify project elevations. The term "match existing" shall be understood to signify both horizontal and vertical alignment.
15. The location of utilities, either underground or overhead, shown within the right of way are approximate and shall be verified by the contractor before beginning construction operations.
16. OSHA regulations prohibit operations that will bring persons or equipment within 10 feet of an energized line. Where workmen and/or equipment have to work close to an energized electrical line, the contractor shall notify the electrical power company involved and make whatever adjustments necessary to ensure the safety of those workmen.
17. It shall be the contractor's responsibility to locate utility service lines as required for construction. Contractors shall call the One Call System for water/wastewater location.
18. Due to federal regulations Title 49, part 192 (8), Gas companies must maintain access to gas valves at all times. The contractor must protect and work around any gas valves that are in the project area.
19. The contractor is fully responsible for the traffic control and will be responsible for furnishing all traffic control devices, and flaggers. The construction methods shall be conducted to provide the least possible interference to traffic so as to permit the continuous movement of the traffic in one direction at all times. The contractor shall clean up and remove from the work area any loose material resulting from contract operations at the end of each workday.
20. Prior to ordering materials to be used in construction, contractor shall provide the engineer with four (4) copies of the source, type, gradation, material specification data and / or shop drawings, as applicable, to satisfy the requirements of the following items and all material items referred to in these listed items:
    a. Water mains and services
    b. Wastewater mains and services

21. Thrust blocks will not be allowed on the system without special approval. Joints will be restrained with restraining systems approved by NBU and restraint length shall be submitted to NBU at the time of plan submittal.
22. Water jetting the backfill within a street will not be permitted. Wastewater trenches subject to traffic shall conform to NBU Connection and Construction Policy Manual.
23. Where the minimum 9 foot separation distance between wastewater lines and water lines / mains cannot be maintained, the installation of wastewater lines shall be in strict accordance with 30 TAC 217.
24. Contractor and/or Contractor's independently retained employee or structural design/geotechnical/safety/equipment consultant, if any, shall review these plans and available geotechnical information and the anticipated installation site(s) within the project work area in order to implement Contractor's trench excavation safety protection systems, programs and/or procedures. The Contractor's implementation of the systems, programs and/or procedures shall provide for adequate trench excavation safety protection that complies with as a minimum, OSHA Standards for trench excavations. Specifically, Contractor and/or Contractor's independently retained employee or safety consultant shall implement a trench safety program in accordance with OSHA Standards governing the presence and activities of individuals working in and around trench excavation.
25. Utility Trench Compaction with street R.O.W.
    a. All utility trench compaction test within the street pavement section shall be the responsibility of the developer's Geo-technical engineer.
    b. Fill material shall be placed in uniform layers not to exceed twelve inches (12") loose.
    c. Each layer of material shall be compacted as specified and tested for density and moisture in accordance with Text Methods TEX-113-E, TEX-114-E, TEX-115-E.
    d. The number and location of required tests shall be determined by the Geo-technical Engineer and approved by the City of New Braunfels Street Inspector.
    e. Upon completion of testing the Geo-technical Engineer shall provide the City of New Braunfels Street inspector with all testing documentation and a certification stating that the placement of fill material has been completed in accordance with the plans.

WATER NOTES:

1. All water mains shall be AWWA C900 (class 150 or greater).
2. Water services shall be single 1" copper tubing.
3. Water line is to be constructed in accordance with the NBU Systems Connection & Construction Policy.
4. Water main shall have a minimum of 42 inches of cover, otherwise concrete encasement will be required.
5. Each unit in a duplex, triplex, fourplex, or condominium shall be provided with an individual water meter. A master meter can be considered for separate buildings, however, those buildings must be plumbed to allow separate meters for future consideration.
6. Contractor will keep the area on top of and around the water meter box free of all objects and debris.
7. Initial backfill of water lines shall be manufactured sand or pea gravel as per NBU Systems Connection & Construction Policy.
8. Secondary backfill of water lines shall generally consist of material removed from the trench and shall be free from brush, debris and trash or stones having any dimension larger than 6" inches at the largest dimension.
9. Hydrostatic testing is done from valve to valve.
10. No meter boxes to be set in driveways or sidewalks. Any meter boxes set in driveways or sidewalks will be relocated at contractor's and/or developer's expense.
11. Meter boxes must be set at the proposed grade. Any meter boxes that are not set at the final grade will be adjusted at contractor's and/or developer's expense.
12. Acceptable meter boxes are D13-BAMR and D15-BAMR. New residential lots are required to use the D15-BAMR meter boxes (double AMR). Commercial lots should choose which box applies to the domestic and/or irrigation meter layout.
13. Thrust blocks will not be allowed on the system without special approval. Joints will be restrained with restraining systems approved by NBU and restraint length shall be submitted to NBU at the time of plan submittal.
14. Contractor shall place tracer wire on top of the water mains. Tracer wire should run from valve to valve and exit at the valve box. The tracer wire should be attached to the top of the pipe using tape. Excess wire should be left within valve boxes to be placed within lid of cover.
15. Water quality shall be protected with appropriate backflow prevention assemblies installed on all irrigation systems, fire suppression systems and multi-unit complexes along with multi-level properties on the domestic meter containment. NBU can assist with the decision on appropriate backflow assemblies on a case by case basis. Contact NBU backflow prevention specialist for more details. Email questions to crossconnection@nbutexas.com
16. All backflow prevention assemblies shall be tested upon installation and report sent to NBU via the online tracking system, contact NBU backflow prevention specialist for more details. Email questions to crossconnection@nbutexas.com
17. All residential and commercial properties shall have a Customer Service Inspection certificate (CSI Inspection) completed upon completion of the building or home structure. Contact NBU backflow prevention specialist for more details. Email questions to crossconnection@nbutexas.com

FLOODPLAIN NOTE

1. NO PORTION OF THIS PROJECT IS WITHIN AN INDICATED SPECIAL FLOOD HAZARD ZONE ACCORDING TO THE FEMA FIRM MAP NO. 48091C0435F EFFECTIVE DATE 9/2/2009.

CITY OF NEW BRAUNFELS NOTES

1. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
2. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
3. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
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NO.	REVISION	DATE

5-3-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
TEXAS ENGINEERING FIRM # 470 | TEXAS SURVEYING FIRM # 100288-00
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5633

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

WATER DISTRIBUTION NOTES

PLAT NO.
JOB NO. 30001-81
DATE MAY 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C4.11

Date: March 13, 2024, 1:25 PM - User ID: carcher
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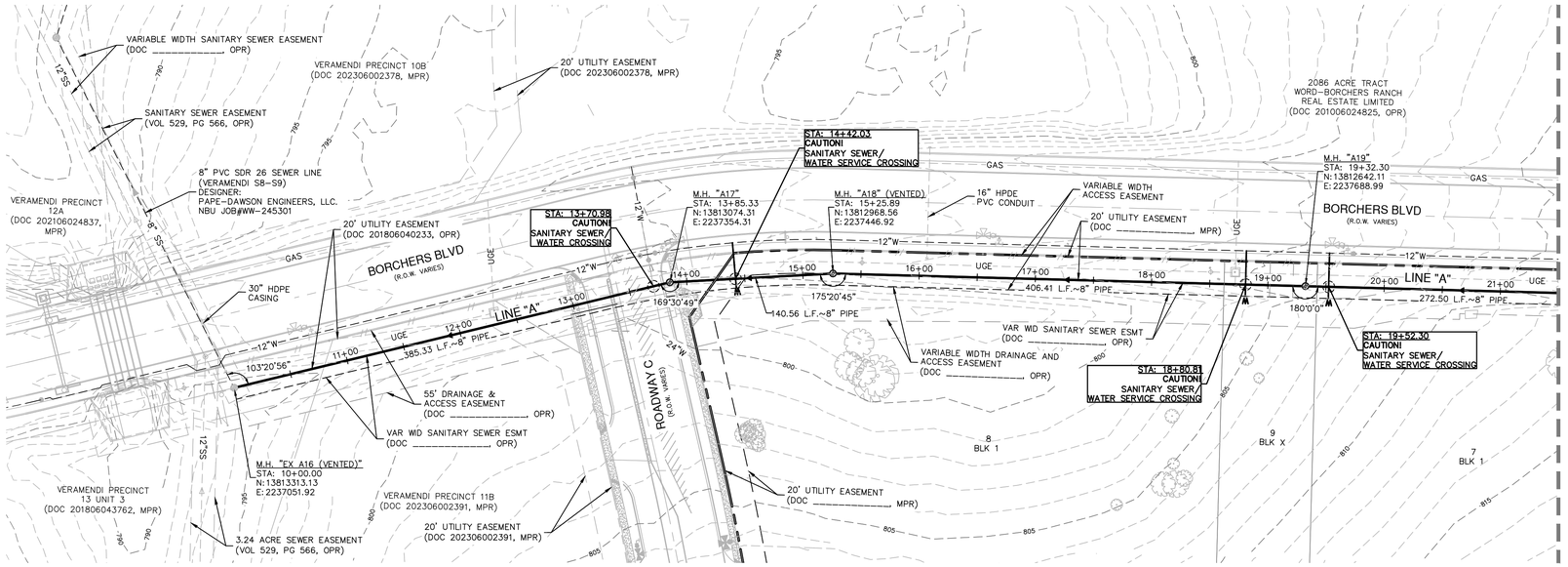
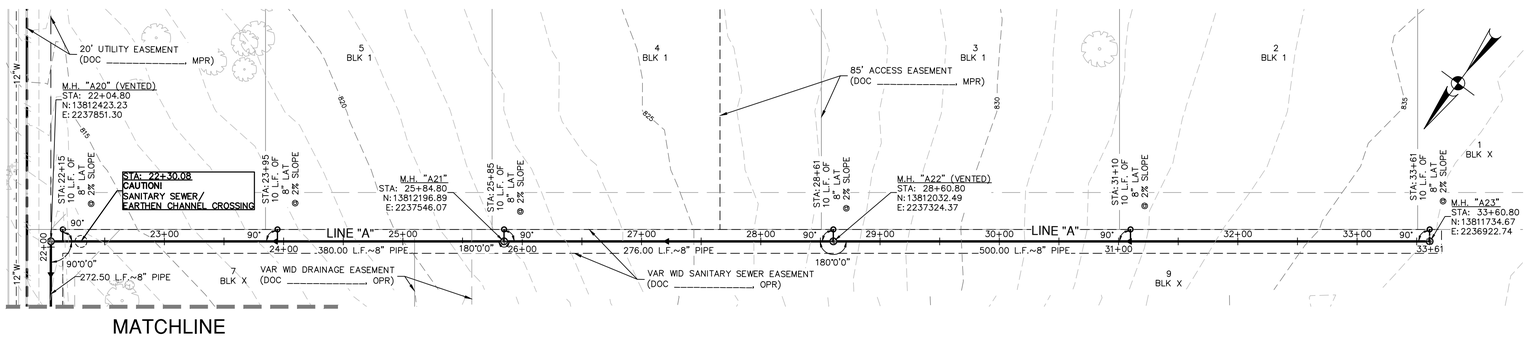
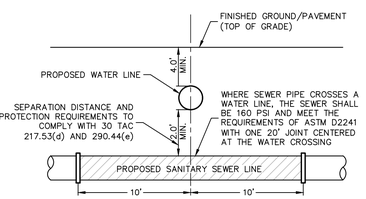


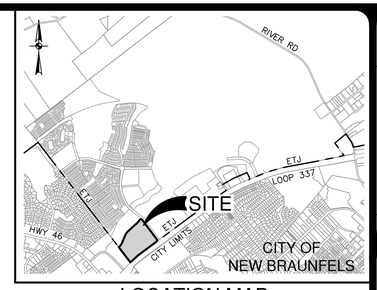


WASTEWATER (NBU JOB NO. WW-245134)		
ITEM	UNIT	QUANTITY
8" SANITARY SEWER PIPE	LF	2,361
LUEs	EA	48
48" MANHOLES	EA	7
8" SANITARY SEWER LATERALS	LF	60



TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT-TO-SCALE



LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 60'

0' 60' 120' 180'

SEWER LEGEND

- PROJECT LIMITS
- EXISTING FIRE HYDRANT
- EXISTING WATER
- EXISTING SEWER
- PROPOSED SEWER
- MANHOLE
- FIRE HYDRANT
- PROPOSED WATER
- PROPOSED SEWER LATERAL
- FINISHED FLOOR ELEVATION FOR SEWER (FF = XXXX.XX)
- PROPOSED STORM DRAIN
- EXISTING TREE

FLOODPLAIN NOTE

1. NO PORTION OF ANY LOT ON THIS PROJECT IS WITHIN AN INDICATED SPECIAL FLOOD HARZARD ZONE ACCORDING TO THE FEMA FIRM MAP NO. 48187C0095F EFFECTIVE DATE 9/2/2009.

CITY OF NEW BRAUNFELS NOTES

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NO.	REVISION	DATE

12-11-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

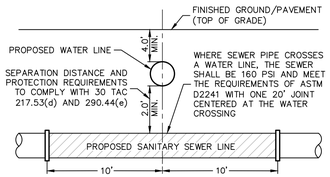
PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288800

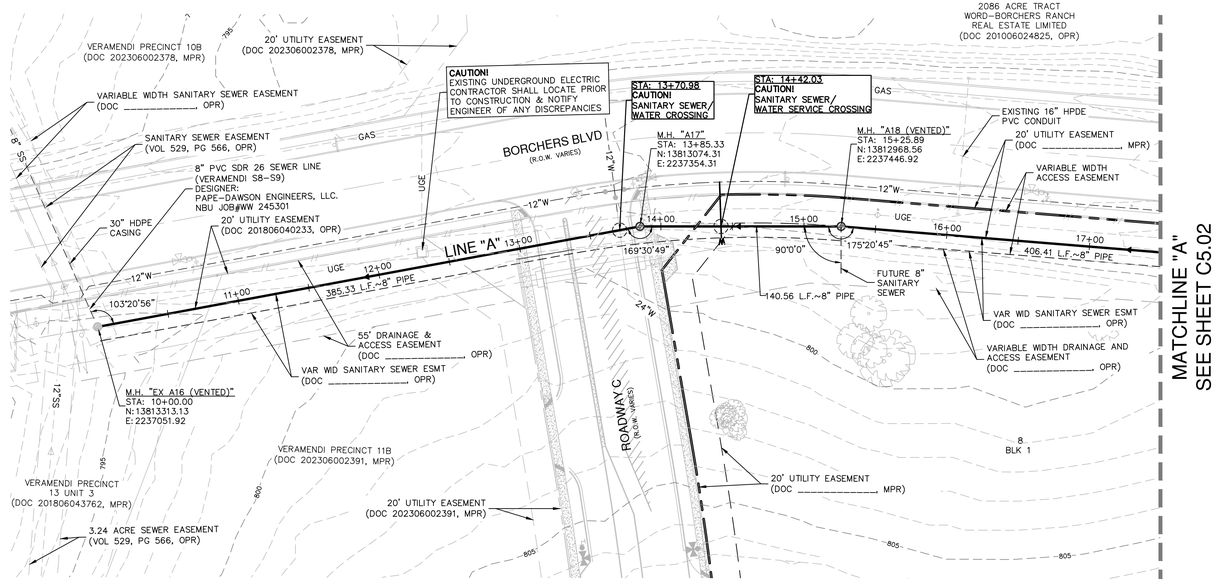
VERAMENDI PRECINCT 11A

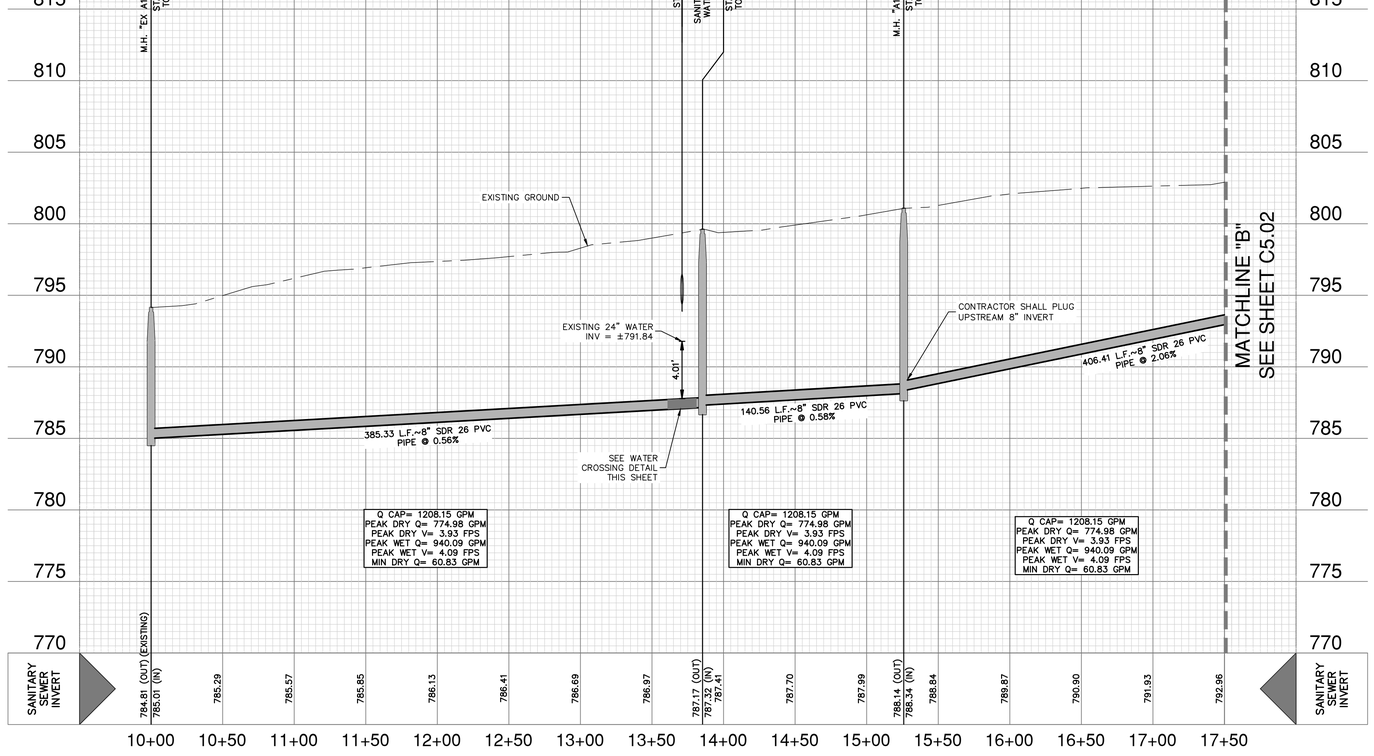
NEW BRAUNFELS, TEXAS

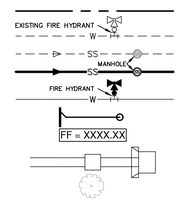
OVERALL SANITARY SEWER PLAN

PLAT NO.
JOB NO. 30001-81
DATE DECEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C5.00









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TYPICAL SANITARY SEWER/WATER CROSSING DETAIL

NOT–TO–SCALE

SEWER LEGEND

PROJECT LIMITS	— — — —
EXISTING WATER	EXISTING FIRE HYDRANT — — W — —
EXISTING SEWER	— — ▷ — SS — —
PROPOSED SEWER	—▶— SS — MANHOLE
PROPOSED WATER	FIRE HYDRANT —— W ——
PROPOSED SEWER LATERAL	
FINISHED FLOOR ELEVATION FOR SEWER	FF = XXXX.XX
PROPOSED STORM DRAIN	
EXISTING TREE TO REMAIN	

NOTES

1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 P.S.I. AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT WATER MAIN.
2. NO VERTICAL STACKS ALLOWED FOR ANY LOTS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
3. WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FOOT OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 150 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH NBU'S WATER CONNECTION POLICY IN THE VICINITY OF WATER MAINS.
(SEE SEWER NOTES SHEET C5.20)
4. CONTRACTOR SHALL ENSURE THAT MANHOLES OUTSIDE OF PAVED AREAS ARE SET WITH TOP ELEVATIONS 2" ABOVE FINISHED GRADE WITH CONCRETE RING ENCASEMENT. CONTRACTOR SHALL ENSURE THAT MANHOLES IN PAVED AREAS ARE SET TO MATCH TOP OF FINISHED GRADE.
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CAUTION!!

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NO.	REVISION	DATE

12–11–2024
JOCELYN PEREZ
98367
Jocelyn Perez

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

SANITARY SEWER LINE A - PLAN & PROFILE
STA. 10+00.00 TO 17+50.00

PLAT NO. ______
JOB NO. 30001–81
DATE DECEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C5.01

Date: March 13, 2024, 4:37 PM – User ID: MGanceres
File: P:\300\01\81\Design\Civil\SSA–30001–81.dwg

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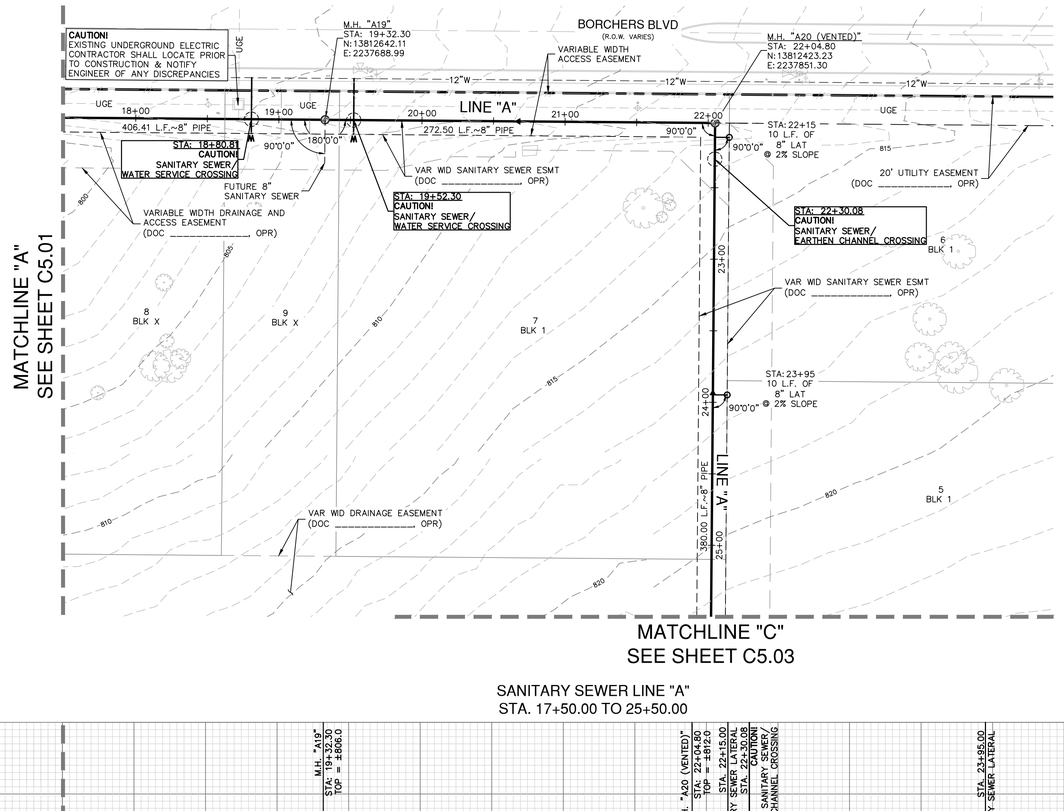
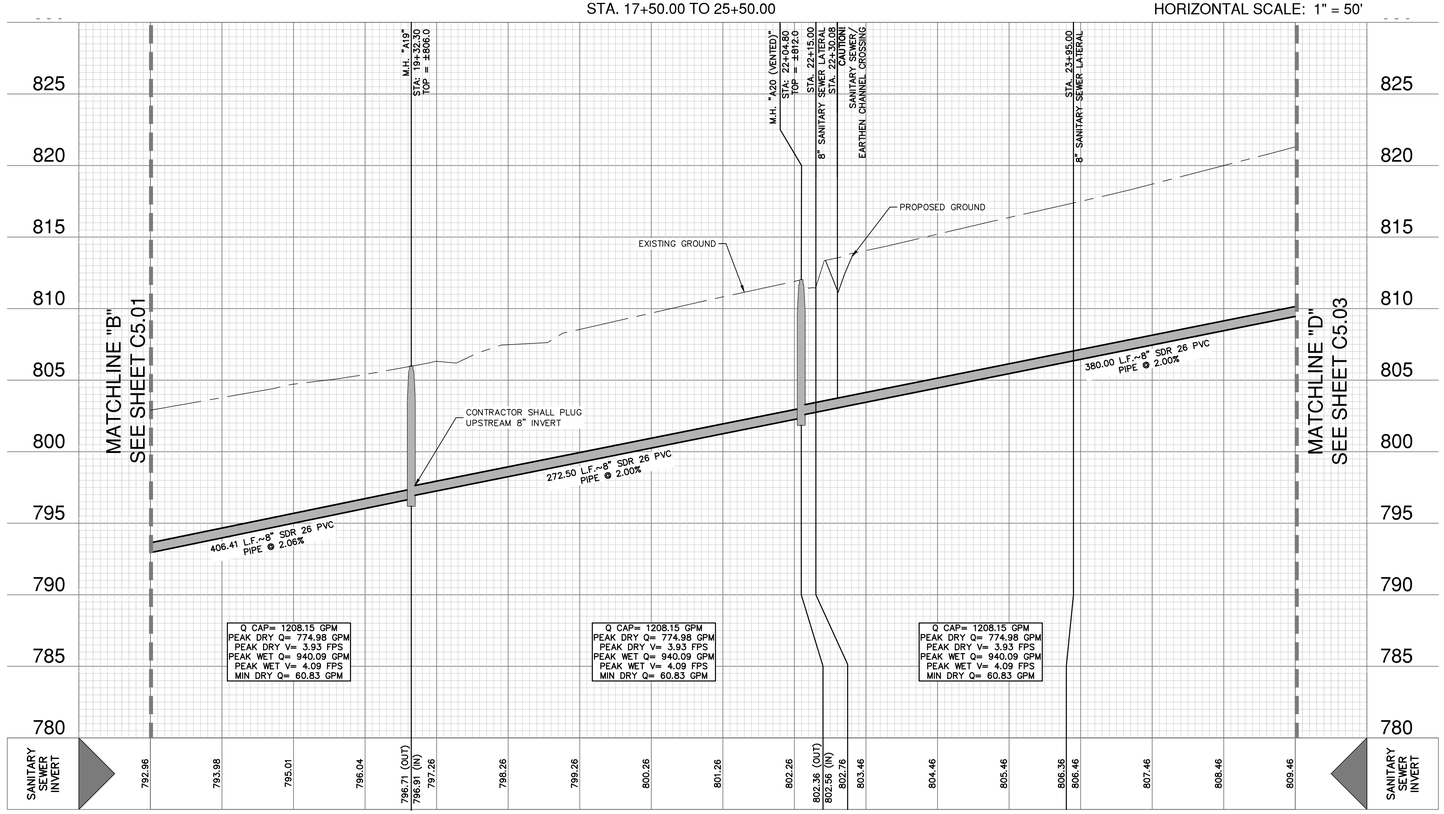


SANITARY SEWER LINE "A"
STA. 17+50.00 TO 25+50.00

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



SCALE: 1"= 50'
0' 50' 100' 150'

SEWER LEGEND

PROJECT LIMITS
EXISTING WATER — EXISTING FIRE HYDRANT
EXISTING SEWER — MANHOLE
PROPOSED SEWER — FIRE HYDRANT
PROPOSED WATER
PROPOSED SEWER LATERAL
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PROPOSED STORM DRAIN
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CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NO.	REVISION	DATE

12–11–2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

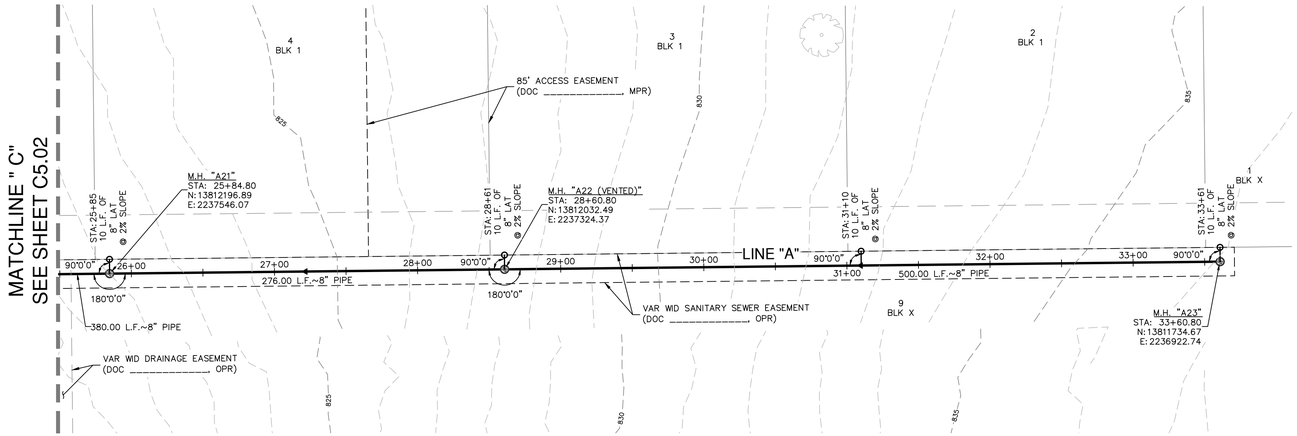
SANITARY SEWER LINE A - PLAN & PROFILE
STA. 17+50.00 TO 25+50.00

PLAT NO.
JOB NO. 30001–81
DATE DECEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C5.02

Date: March 13, 2024, 4:38 PM – User ID: MGonceres
File: P:\300\01\81\Design\Civil\SSA–30001–81.dwg

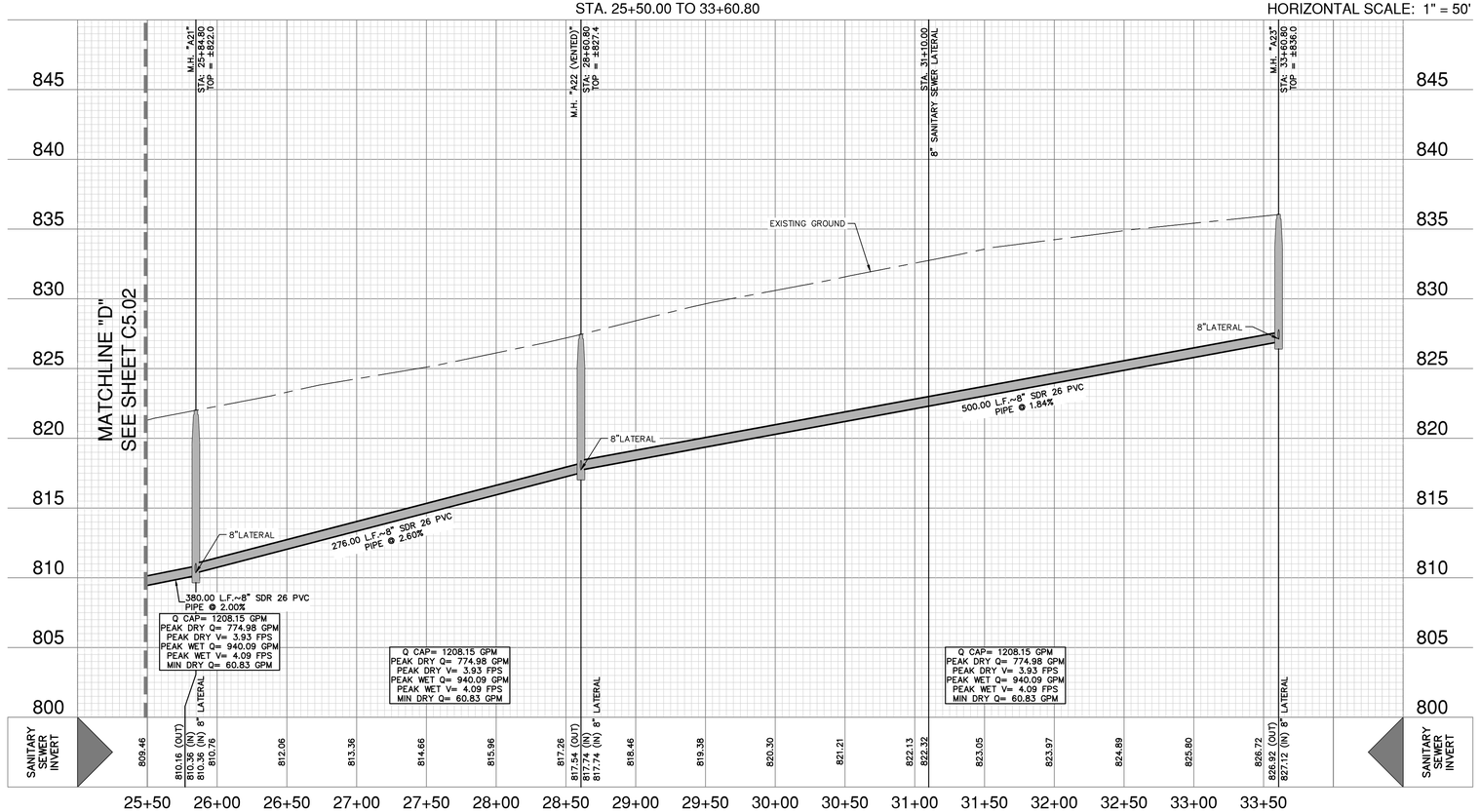
CITY OF NEW BRAUNFELS NOTES

1. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
2. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
3. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5–FEET IN DEPTH. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
4. UTILITY TRENCH COMPACTION – ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX–113–E, TEX–114–E, TEX–115–E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE, UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.



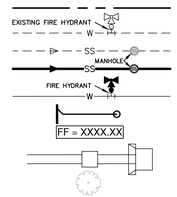
SANITARY SEWER LINE "A"
STA. 25+50.00 TO 33+60.80

VERTICAL SCALE: 1" = 5'
HORIZONTAL SCALE: 1" = 50'



SEWER LEGEND

PROJECT LIMITS
EXISTING WATER
EXISTING SEWER
PROPOSED SEWER
PROPOSED WATER
PROPOSED SEWER LATERAL
FINISHED FLOOR ELEVATION FOR SEWER
PROPOSED STORM DRAIN
EXISTING TREE TO REMAIN



NOTES

1. SEWER PIPE WHERE WATER LINE CROSSES SHALL BE 160 P.S.I. AND MEET THE REQUIREMENTS OF ASTM D2241 WITH ONE 20' JOINT CENTERED AT WATER MAIN.
2. NO VERTICAL STACKS ALLOWED FOR ANY LOTS UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
3. WHEN HORIZONTAL DISTANCE BETWEEN SEWER PIPES AND WATER MAIN IS LESS THAN 9 FOOT OF SEPARATION, SEWER MAIN SHALL BE INSTALLED WITH 150 PSI (MIN) PRESSURE PIPE AND FITTINGS IN ACCORDANCE WITH NBU'S WATER CONNECTION POLICY IN THE VICINITY OF WATER MAINS.
(SEE SEWER NOTES SHEET C5.20)
4. CONTRACTOR SHALL ENSURE THAT MANHOLES OUTSIDE OF PAVED AREAS ARE SET WITH TOP ELEVATIONS 2" ABOVE FINISHED GRADE WITH CONCRETE RING ENCASEMENT. CONTRACTOR SHALL ENSURE THAT MANHOLES IN PAVED AREAS ARE SET TO MATCH TOP OF FINISHED GRADE.
5. ALL SEWER PIPES SHALL BE 8" PVC (SDR 26), UNLESS OTHERWISE NOTED.
6. CONTRACTOR IS TO VERIFY EXISTING INVERT OF SANITARY SEWER MAIN AND ALERT ENGINEER IMMEDIATELY OF ANY DIFFERENCE FROM INVERT SHOWN ON PLANS.
7. CONTRACTOR SHALL PROTECT ALL EXISTING FENCES. ANY FENCE DAMAGED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT THEIR EXPENSE.
8. THE CONTRACTOR WILL BE RESPONSIBLE FOR DETERMINING EXACT LOCATION OF ALL UTILITIES AND DRAINAGE STRUCTURES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL UNCOVER EXISTING UTILITIES PRIOR TO CONSTRUCTION TO VERIFY SIZE, GRADE, AND LOCATION. THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY OF ANY DEVIATIONS FROM PLANS PRIOR TO BEGINNING CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES, WHETHER SHOWN ON THE PLANS OR NOT, SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO REPAIR, AT HIS EXPENSE.
9. SEE THIS SHEET FOR TYPICAL SANITARY SEWER/WATER CROSSING DETAIL.
10. IF A CONFLICT EXISTS BETWEEN THE VARIOUS SUBMITTED DOCUMENTS (ENGINEERING CALCULATIONS, PROJECTED SPECIFICATIONS, PROJECTED PLANS, ADDENDUMS, ETC.) THE FOLLOWING DOCUMENTS TAKE PRECEDENT: SPECIFICATIONS GOVERN OVER PLANS, SPECIAL CONDITIONS GOVERN OVER SPECIFICATIONS AND PLANS. ADDENDUMS TAKE PRECEDENCE OVER ALL.
11. LAST 20 L.F. OF 8" STUB–OUT SHALL BE CONSTRUCTED OF P.V.C. SDR 26 (160 P.S.I.) PRESSURE PIPE.
12. ALL SEWER PIPE LATERALS SHALL BE SDR 26 (CLASS 160) PVC PIPE.
13. SERVICES SHALL HAVE A MINIMUM OF THIRTY–SIX (36) INCHES OF COVER.

NOTE:
FOR PAVEMENT DESIGN SECTION SEE GEOTECHNICAL ENGINEERING REPORT.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

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NO.	REVISION	DATE

9–13–2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

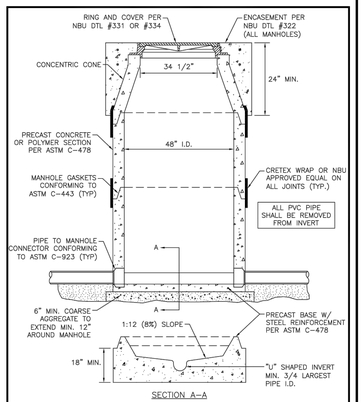
PAPE-DAWSON ENGINEERS
672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

SANITARY SEWER LINE A - PLAN & PROFILE
STA. 25+50.00 TO 33+60.80

PLAT NO.
JOB NO. 30001–81
DATE SEPTEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C5.03

Date: March 13, 2024, 10:26 AM – User ID: MCanceres
File: P:\300\01\81\Design\Civil\SSA–30001–81.dwg



*CONTRACTOR SHALL LEVEL AND PLUMB THE BASE PRIOR TO SETTING THE PRECAST MANHOLE RISER SECTIONS ON THE PRECAST CONCRETE BASE.

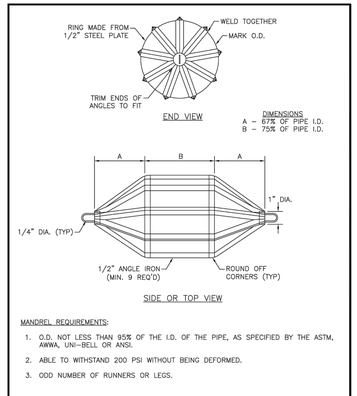
MANHOLE TO BE LINED WITH CORROSION RESISTANT MATERIALS (KERNOS SEWERCOAT 2000 HS & PQ, AND APM PERMACAST MS-10,000 CONSHIELD APPLIED IN A 1-INCH THICK LAYER)

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY	STANDARD DRAWING
A. Willard	
CHECKED BY	
A. Willard	
APPROVED BY	
8/17/21	

WASTEWATER MANHOLE ON PRECAST BASE

SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO.: 328



MANDREL REQUIREMENTS:

1. O.D. NOT LESS THAN 95% OF THE I.D. OF THE PIPE, AS SPECIFIED BY THE ASTM, AWWA, UNI-BELL OR ANSI.
2. ABLE TO WITHSTAND 200 PSI WITHOUT BEING DEFORMED.
3. ODD NUMBER OF RUNNERS OR LEGS.

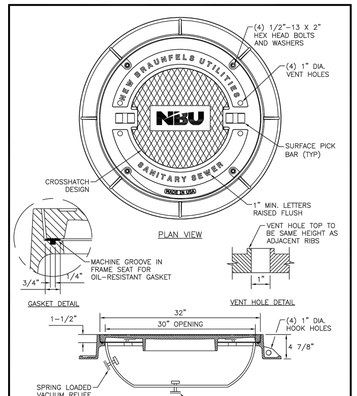
*THIS INFORMATION IS PROVIDED AS A REFERENCE. ALL DEFLECTION TESTING SHALL BE DONE IN ACCORDANCE WITH TCEQ CHAPTER 217.

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY	STANDARD DRAWING
A. Willard	
CHECKED BY	
A. Willard	
APPROVED BY	
8/17/21	

GO, NO GO DEFLECTION TESTING MANDREL

SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO.: 350



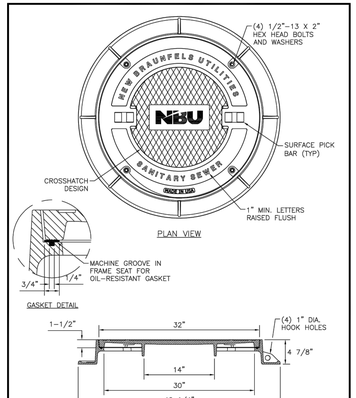
MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY	STANDARD DRAWING
A. Willard	
CHECKED BY	
A. Willard	
APPROVED BY	
8/17/21	

VENTED SANITARY SEWER MANHOLE COVER

SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO.: 334



MATERIAL: CAST GRAY IRON ASTM A-48, CLASS 35B

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY	STANDARD DRAWING
A. Willard	
CHECKED BY	
A. Willard	
APPROVED BY	
8/17/21	

SANITARY SEWER MANHOLE COVER

SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO.: 331

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY	STANDARD DRAWING
A. Willard	
CHECKED BY	
A. Willard	
APPROVED BY	
8/17/21	

WASTEWATER MANHOLE ON CAST IN PLACE FOUNDATION

SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO.: 327

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY	STANDARD DRAWING
A. Willard	
CHECKED BY	
A. Willard	
APPROVED BY	
8/17/21	

NEW MANHOLE CONSTRUCTION AND MINOR MANHOLE ADJUSTMENT

SCALE: N.T.S. | SHEET: 1 OF 1 | DRAWING NO.: 322

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY	STANDARD DRAWING
JD Amaro	
CHECKED BY	
APPROVED BY	
4-16-03	

MANHOLE INVERT PLAN

SCALE: N.T.S. | SHEET: 1 OF 2 | DRAWING NO.: 320

NBU — NEW BRAUNFELS UTILITIES, WATER SYSTEMS ENGINEERING

DRAWN BY	STANDARD DRAWING
H Shedrock	
APPROVED BY	
UPDATED	
2-2-03	

STANDARD MANHOLE MANHOLE FLOOR PLAN

SCALE: N.T.S. | SHEET: 2 OF 2 | DRAWING NO.: 330

* Sewer Gravel 6" Min. or 1/8 O.D. of the pipe, whichever is greater as directed by the Inspector

Pipe bedding of wastewater lines shall be manufactured sand or pea gravel as per NBU specifications.

1) RIGID PIPE – UNSTABLE OR UNACCEPTABLE CONDITIONS

FLEXIBLE PIPE – ALL CONDITIONS

2) RIGID PIPE – EXISTING STABLE BEDDING CONDITIONS

** SECONDARY BACKFILL OF WASTEWATER LINES SHALL MEET NBU AND CITY OF NEW BRAUNFELS SPECIFICATIONS AND SHALL GENERALLY CONSIST OF MATERIALS REMOVED FROM THE TRENCH AND SHALL BE FREE FROM BRUSH, DEBRIS AND TRASH, NO ROCKS OR STONES HAVING ANY DIMENSION LARGER THAN 6 INCHES AT THE LARGEST DIMENSION.

SANITARY SEWER PIPE LAID IN TRENCH (OUTSIDE OF PAVEMENT)

NOT TO SCALE

CITY OF NEW BRAUNFELS NOTES

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2. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
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NO.	REVISION	DATE

5-3-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
TBPELS FIRM #470 | TBPLS FIRM #10028800

VERAMENDI PRECINCT 11A

NEW BRAUNFELS, TEXAS

SANITARY SEWER DETAILS

PLAT NO.
JOB NO. 30001-81
DATE MAY 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C5.10

Texas Commission on Environmental Quality
Organized Sewage Collection System
General Construction Notes

Edwards Aquifer Protection Program Construction Notes – Legal Disclaimer

The following/listed "construction notes" are intended to be advisory in nature only and do not constitute an approval or conditional approval by the Executive Director, nor do they constitute a comprehensive listing of rules or conditions to be followed during construction. Further actions may be required to achieve compliance with TCEQ regulations found in Title 30, Texas Administrative Code, Chapters 213 and 217, as well as local ordinances and regulations providing for the protection of water quality. Additionally, nothing contained in the following/listed "construction notes" restricts the powers of the Executive Director, the commission or any other governmental entity to prevent, correct, or curtail activities that obtain a city report of pollution of the Edwards Aquifer or hydrologically connected surface waters. The holder of any Edwards Aquifer Protection Plan containing "construction notes" is still responsible for compliance with Title 30, Texas Administrative Code, Chapters 213 or any other applicable TCEQ regulation, as well as all conditions of an Edwards Aquifer Protection Plan through all phases of plan implementation. Failure to comply with any condition of the Executive Director's approval, whether or not in contradiction of any "construction notes," is a violation of TCEQ regulations and any violation is subject to administrative rules, orders, and penalties as provided under Title 30, Texas Administrative Code § 213.10 (relating to Enforcement). Such violations may also be subject to civil penalties and injunction. The following/listed "construction notes" in no way represent an approved exception by the Executive Director to any part of Title 30 Texas Administrative Code, Chapters 213 and 217, or any other TCEQ applicable regulation.

1. This Organized Sewage Collection System (SCS) must be constructed in accordance with 30 Texas Administrative Code (TAC) §213.5(c), the Texas Commission on Environmental Quality's (TCEQ) Edwards Aquifer Rules and any local government standard specifications.

2. All contractors conducting regulated activities associated with this proposed regulated project must be provided with copies of the SCS plan and the TCEQ letter indicating the specific conditions of its approval. During the course of these regulated activities, the contractors must be required to keep on-site copies of the plan and the approval letter.

3. A written notice of construction must be submitted to the presiding TCEQ regional office at least 48 hours prior to the start of any regulated activities. This notice must include:
   - the name of the approved project;
   - the activity start date; and
   - the contact information of the prime contractor.

4. Any modification to the activities described in the referenced SCS application following the date of approval may require the submittal of an SCS application to modify this approval, including the payment of appropriate fees and all information necessary for its review and approval.

5. Prior to beginning any construction activity, all temporary erosion and sedimentation (E&S) control measures must be properly installed and maintained in accordance with the manufacturers specifications. These controls must remain in place until the disturbed areas have been permanently stabilized.

6. If any sensitive features are discovered during the wastewater line trenching activities, all regulated activities near the sensitive feature must be suspended immediately. The applicant must immediately notify the appropriate regional office of the TCEQ of the feature discovered. A geologist's assessment of the location and extent of the feature discovered must be reported to that regional office in writing and the applicant must submit a plan for ensuring the structural integrity of the sewer line or for modifying the proposed collection system alignment around the feature. The regulated activities near the sensitive feature may not proceed until the

executive director has reviewed and approved the methods proposed to protect the sensitive feature and the Edwards Aquifer from any potentially adverse impacts to water quality while maintaining the structural integrity of the line.

7. Sewer lines located within or crossing the 5-year floodplain of a drainage way will be protected from inundation and stream velocities which could cause erosion and scouring of backfill. The trench must be capped with concrete to prevent scouring of backfill, or the sewer lines must be encased in concrete. All concrete shall have a minimum thickness of 6 inches.

8. Blasting procedures for protection of existing sewer lines and other utilities will be in accordance with the National Fire Protection Association criteria. Sand is not allowed as bedding or backfill in trenches that have been blasted. If any existing sewer lines are damaged, the lines must be repaired and retested.

9. All manholes constructed or rehabilitated on this project must have watertight size on size resilient connectors allowing for differential settlement. If manholes are constructed within the 100-year floodplain, the cover must have a gasket and be bolted to the ring. Where gasketed manhole covers are required for more than three manholes in sequence or for more than 1500 feet, alternate means of venting will be provided. Bricks are not an acceptable construction material for any portion of the manhole.

   The diameter of the manholes must be a minimum of four feet and the manhole for entry must have a minimum clear opening diameter of 30 inches. These dimensions and other details showing compliance with the commission's rules concerning manholes and sewer line/manhole inverts described in 30 TAC §217.55 are included on Plan Sheet C5.10.

   It is suggested that entrance into manholes in excess of four feet deep be accomplished by means of a portable ladder. The inclusion of steps in a manhole is prohibited.

10. Where water lines and new sewer line are installed with a separation distance closer than nine feet (i.e., water lines crossing wastewater lines, water lines paralleling wastewater lines, or water lines next to manholes) the installation must meet the requirements of 30 TAC §217.53(d) (Pipe Design) and 30 TAC §290.44(e) (Water Distribution).

11. Where sewers lines deviate from straight alignment and uniform grade all curvature of sewer pipe must be achieved by the following procedure which is recommended by the pipe manufacturer: _____

    If pipe flexure is proposed, the following method of preventing deflection of the joint must be used: _____

    Specific care must be taken to ensure that the joint is placed in the center of the trench and properly bedded in accordance with 30 TAC §217.54.

12. New sewage collection system lines must be constructed with stub outs for the connection of anticipated extensions. The location of such stub outs must be marked on the ground such that their location can be easily determined at the time of connection of the extensions. Such stub outs must be manufactured wyes or tees that are compatible in size and material with both the sewer line and the extension. At the time of original construction, new stub-outs must be constructed sufficiently to extend beyond the end of the street pavement. All stub-outs must be sealed with a manufactured cap to prevent leakage. Extensions that were not anticipated at the time of original construction or that are to be connected to an existing sewer line not furnished with stub outs must be connected using a manufactured saddle and in accordance with accepted plumbing techniques.

If no stub-out is present an alternate method of joining laterals is shown in the detail on Plan Sheet __ of __. (For potential future laterals).

The private service lateral stub-outs must be installed as shown on the plan and profile sheets on Plan Sheet __ of __ and marked after backfilling as shown in the detail on Plan Sheet __ of __.

13. Trenching, bedding and backfill must conform with 30 TAC §217.54. The bedding and backfill for flexible pipe must comply with the standards of ASTM D-2321, Classes IA, IB, II or III. Rigid pipe bedding must comply with the requirements of ASTM C 12 (ANSI A 106.2) classes A, B or C.

14. Sewer lines must be tested from manhole to manhole. When a new sewer line is connected to an existing stub or clean-out, it must be tested from existing manhole to new manhole. If a stub or clean-out is used at the end of the proposed sewer line, no private service attachments may be connected between the last manhole and the cleanout unless it can be certified as conforming with the provisions of 30 TAC §213.5(c)(3)(E).

15. All sewer lines must be tested in accordance with 30 TAC §217.57. The engineer must retain copies of all test results which must be made available to the executive director upon request. The engineer must certify in writing that all wastewater lines have passed all required testing to the appropriate regional office within 30 days of test completion and prior to use of the new collection system. Testing method will be:
   (a) For a collection system pipe that will transport wastewater by gravity flow, the design must specify an infiltration and exfiltration test or a low-pressure air test. A test must conform to the following requirements:
      (1) *Low Pressure Air Test.*
         (A) A low pressure air test must follow the procedures described in American Society For Testing And Materials (ASTM) C-828, ASTM C-924, or ASTM F-1417 or other procedure approved by the executive director, except as to testing times as required in Table C.3 in subparagraph (C) of this paragraph or Equation C.3 in subparagraph (B)(ii) of this paragraph.
         (B) For sections of collection system pipe less than 36 inch average inside diameter, the following procedure must apply, unless a pipe is to be tested as required by paragraph (2) of this subsection.
            (i) A pipe must be pressurized to 3.5 pounds per square inch (psi) greater than the pressure exerted by groundwater above the pipe.
            (ii) Once the pressure is stabilized, the minimum time allowable for the pressure to drop from 3.5 psi gauge to 2.5 psi gauge is computed from the following equation:

Equation C.3

$$T = \frac{0.085 \times D \times K}{Q}$$

Where:

T = time for pressure to drop 1.0 pound per square inch gauge in seconds
K = 0.000419 X D X L, but not less than 1.0
D = average inside pipe diameter in inches

L = length of line of same size being tested, in feet
Q = rate of loss, 0.0015 cubic feet per minute per square foot internal surface

(C) Since a K value of less than 1.0 may not be used, the minimum testing time for each pipe diameter is shown in the following Table C.3:

Pipe Diameter *(inches)*	Minimum Time *(seconds)*	Maximum Length for Minimum Time *(feet)*	Time for Longer Length *(seconds/foot)*
6	340	398	0.855
8	454	298	1.520
10	567	239	2.374
12	680	199	3.419
15	850	159	5.342
18	1020	133	7.693
21	1190	114	10.471
24	1360	100	13.676
27	1530	88	17.309
30	1700	80	21.369
33	1870	72	25.856

(D) An owner may stop a test if no pressure loss has occurred during the first 25% of the calculated testing time.
(E) If any pressure loss or leakage has occurred during the first 25% of a testing period, then the test must continue for the entire test duration as outlined above or until failure.
(F) Wastewater collection system pipes with a 27 inch or larger average inside diameter may be air tested at each joint instead of following the procedure outlined in this section.
(G) A testing procedure for pipe with an inside diameter greater than 33 inches must be approved by the executive director.

(2) *Infiltration/Exfiltration Test.*
(A) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch of diameter per mile of pipe per 24 hours at a minimum test head of 2.0 feet above the crown of a pipe at an upstream manhole.
(B) An owner shall use an infiltration test in lieu of an exfiltration test when pipes are installed below the groundwater level.
(C) The total exfiltration, as determined by a hydrostatic head test, must not exceed 50 gallons per inch diameter per mile of pipe per 24 hours at a minimum test head of two feet above the crown of a pipe at an upstream manhole, or at least two feet above existing groundwater level, whichever is greater.
(D) For construction within a 25-year flood plain, the infiltration or exfiltration must not exceed 10 gallons per inch diameter per mile of pipe per 24 hours at the same minimum test head as in subparagraph (C) of this paragraph.
(E) If the quantity of infiltration or exfiltration exceeds the maximum quantity specified, an owner shall undertake remedial action in order to reduce

the infiltration or exfiltration to an amount within the limits specified. An owner shall retest a pipe following a remediation action.

(b) If a gravity collection pipe is composed of flexible pipe, deflection testing is also required. The following procedures must be followed:
(1) For a collection pipe with inside diameter less than 27 inches, deflection measurement requires a rigid mandrel.
(A) *Mandrel Sizing.*
(i) A rigid mandrel must have an outside diameter (OD) not less than 95% of the base inside diameter (ID) or average ID of a pipe, as specified in the appropriate standard by the ASTMs, American Water Works Association, UNI-BELL, or American National Standards Institute, or any related appendix.
(ii) If a mandrel sizing diameter is not specified in the appropriate standard, the mandrel must have an OD equal to 95% of the ID of a pipe. In this case, the ID of the pipe, for the purpose of determining the OD of the mandrel, must equal be the average outside diameter minus two minimum wall thicknesses for OD controlled pipe and the average inside diameter for ID controlled pipe.
(iii) All dimensions must meet the appropriate standard.
(B) *Mandrel Design.*
(i) A rigid mandrel must be constructed of a metal or a rigid plastic material that can withstand 200 psi without being deformed.
(ii) A mandrel must have nine or more odd number of runners or legs.
(iii) A barrel section length must equal at least 75% of the inside diameter of a pipe.
(iv) Each size mandrel must use a separate proving ring.
(C) *Method Options.*
(i) An adjustable or flexible mandrel is prohibited.
(ii) A test may not use television inspection as a substitute for a deflection test.
(iii) If requested, the executive director may approve the use of a deflectometer or a mandrel with removable legs or runners on a case-by-case basis.
(2) For a gravity collection system pipe with an inside diameter 27 inches and greater, other test methods may be used to determine vertical deflection.
(3) A deflection test method must be accurate to within plus or minus 0.2% deflection.
(4) An owner shall not conduct a deflection test until at least 30 days after the final backfill.
(5) Gravity collection system pipe deflection must not exceed five percent (5%).
(6) If a pipe section fails a deflection test, an owner shall correct the problem and conduct a second test after the final backfill has been in place at least 30 days.

16. All manholes must be tested to meet or exceed the requirements of 30 TAC §217.58.
(a) All manholes must pass a leakage test.
(b) An owner shall test each manhole (after assembly and backfilling) for leakage, separate and independent of the collection system pipes, by hydrostatic exfiltration testing, vacuum testing, or other method approved by the executive director.
(1) Hydrostatic Testing.

(A) The maximum leakage for hydrostatic testing or any alternative test methods is 0.025 gallons per foot diameter per foot of manhole depth per hour.
(B) To perform a hydrostatic exfiltration test, an owner shall seal all wastewater pipes coming into a manhole with an internal pipe plug, fill the manhole with water, and maintain the test for at least one hour.
(C) A test for concrete manholes may use a 24-hour wetting period before testing to allow saturation of the concrete.
(2) Vacuum Testing.
(A) To perform a vacuum test, an owner shall plug all lift holes and exterior joints with a non-shrink grout and plug all pipes entering a manhole.
(B) No grout must be placed in horizontal joints before testing.
(C) Stub-outs, manhole boots, and pipe plugs must be secured to prevent movement while a vacuum is drawn.
(D) An owner shall use a minimum 60 inch/lb torque wrench to tighten the external clamps that secure a test cover to the top of a manhole.
(E) A test head must be placed at the inside of the top of a cone section, and the seal inflated in accordance with the manufacturer's recommendations.
(F) There must be a vacuum of 10 inches of mercury inside a manhole to perform a valid test.
(G) A test does not begin until after the vacuum pump is off.
(H) A manhole passes the test if after 2.0 minutes and with all valves closed, the vacuum is at least 9.0 inches of mercury.

17. All private service laterals must be inspected and certified in accordance with 30 TAC §213.5(c)(3)(I). After installation of and, prior to covering and connecting a private service lateral to an existing organized sewage collection system, a Texas Licensed Professional Engineer, Texas Registered Sanitarian, or appropriate city inspector must visually inspect the private service lateral and the connection to the sewage collection system, and certify that it is constructed in conformity with the applicable provisions of this section. The owner of the collection system must maintain such certifications for five years and forward copies to the appropriate regional office upon request. Connections may only be made to an approved sewage collection system.

Austin Regional Office 12100 Park 35 Circle, Building A Austin, Texas 78753-1808 Phone (512) 339-2929 Fax (512) 339-3795	San Antonio Regional Office 14250 Judson Road San Antonio, Texas 78233-4480 Phone (210) 490-3096 Fax (210) 545-4329

THESE GENERAL CONSTRUCTION NOTES MUST BE INCLUDED ON THE CONSTRUCTION PLANS PROVIDED TO THE CONTRACTOR AND ALL SUBCONTRACTORS.

WASTEWATER NOTES:

1. The contractor shall maintain service to existing wastewater system at all times during construction.
2. A minimum of 8" wastewater pipe and fittings (P.V.C. SDR-26, ASTM, D-3034, D-3212, F-477) are required on new installation.
3. All residential wastewater service laterals shall be extended to the property line and a cleanout shall be installed at the property line. Services to lots will extend four (4) feet past the underground electric conduit if electric is installed in the front easement. All sewer cleanouts that lead to NBU mains shall be installed with a protective utility shroud and pivoting marker pole during time of construction.
4. Pipe bedding of wastewater lines shall be manufactured sand or pea gravel as per NBU specifications.
5. Secondary backfill of wastewater lines shall generally consist of materials removed from the trench and shall be free from brush, debris and trash, no rocks or stones having any dimension larger than 6 inches at the largest dimension.
6. All wastewater pipes shall have compression or mechanical joints as per 30 TAC §217.53 (c) (2).
7. For wastewater lines less than 24" in diameter, select initial backfill material shall be placed in two lifts.
   a. The first lift shall be spread uniformly and simultaneously on each side and under the shoulders of the pipe to the mid point or spring line of the pipe.
   b. The second lift shall be placed to a depth as shown on the pipe backfill detail. For pipes larger than 24", 12" maximum lifts shall be used.
8. All manholes must be water tight, either monolithic, cast-in-place concrete structures or prefabricated manholes specifically approved by NBU. The manholes shall have water-tight rings and covers. Wherever they are within the 100 year floodplain, the manhole covers shall be bolted. Every third manhole in sequence shall have an alternate means of venting. 30 TAC §213.5 (c) (3) (A) and 30 TAC §217.55 (o).
9. All manholes shall be constructed so that the top of the ring is two inches (2") above surrounding ground except when located in paved area. In paved areas, the manhole ring shall be flush with pavement.
10. All new manholes, unless approved by NBU Engineering, are to have covers with 32" openings.
11. Wastewater pipe connections to pre-cast manholes will be compression joints or mechanical "boot type" joint as approved by NBU.
12. Wastewater lines shall be tested from manhole to manhole.
13. In areas where a new wastewater manhole is to be constructed over an existing wastewater system, it shall be the contactor's responsibility to test the existing manholes before construction. After the proposed manhole(s) has been built, the contractor shall re-test the existing system to the satisfaction of the construction inspector. (no separate pay item).
14. Where the minimum 9 foot separation distance between wastewater lines and water lines / mains cannot be maintained, the installation of wastewater lines shall be in strict accordance with TCEQ. The wastewater line shall be constructed of cast iron, ductile iron or PVC meeting the ASTM specification for both pipes and joints of 150 psi and shall be in accordance with 30 TAC §217.53 (d) (3) (A) (i).
15. No testing will be performed prior to 30 days from complete installation of the wastewater lines. The following sequence will be strictly adhered to:
   a. Pull mandrel
   b. Perform Air test
   c. Cleaning of any debris
   d. Flushing of system
   e. TV Inspection (within 72 hours of flushing)
16. A minimum of 3 feet of cover is to be maintained over the wastewater main and laterals at subgrade, otherwise concrete encasement will be required.
17. Wastewater main connections made directly to existing manholes will require successful testing of the manhole in accordance with NBU Connection & Construction Policy Manual.
18. TCEQ and EPA require erosion and sedimentation control for construction of wastewater collection systems. Developer or authorized representative shall provide erosion and sedimentation control as notes on the project's plan and profile sheets. All temporary erosion and sedimentation controls shall be removed by the Contractor at final acceptance of the project by NBU Water Systems.
19. All manholes not within paved streets shall have locking concrete collar to secure ring and cover to manhole cone per NBU Detail drawing #329.
20. All manholes over the Edwards Aquifer Recharge Zone shall have locking concrete collar to secure ring and cover to manhole cone per NBU detail drawing #329.

CITY OF NEW BRAUNFELS UTILITY NOTES

1. NO VALVES, HYDRANTS, ETC. SHALL BE CONSTRUCTED WITHIN CURBS, SIDEWALKS, OR DRIVEWAYS.
2. ALL UTILITIES TO BE CONSTRUCTED PRIOR TO STREETS.
3. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
4. UTILITY TRENCH COMPACTION – ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

NBU WATER CONNECTION POLICY GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION PROCEDURES WITHIN THE SCOPE OF THE PROJECT SHALL BE APPROVED BY NEW BRAUNFELS UTILITIES AND COMPLY WITH THE CURRENT 'NEW BRAUNFELS UTILITIES WATER SYSTEMS CONNECTION/CONSTRUCTION POLICIES WATER SYSTEMS'.
2. CONTRACTOR SHALL NOT PROCEED WITH ANY PIPE INSTALLATION WORK UNTIL THEY OBTAIN A COPY OF THE PLANS FROM THE CONSULTANT OR ENGINEER AND NOTIFY NBU WATER SYSTEMS ENGINEERING AT 830-608-8971 WITH AT LEAST THREE (3) WORKING DAYS (72 HOURS) NOTICE. WORK COMPLETED BY THE CONTRACTOR, WHICH HAS NOT RECEIVED A NOTICE TO PROCEED WITH NEW BRAUNFELS UTILITIES WATER SYSTEMS ENGINEERING WILL BE SUBJECT TO REMOVAL AND REPLACEMENT BY AND AT THE EXPENSE OF THE CONTRACTOR.
3. THE DEVELOPER DEDICATES THE WATER / WASTEWATER MAINS UPON COMPLETION BY THE DEVELOPER AND ACCEPTANCE BY THE NEW BRAUNFELS UTILITIES WATER SYSTEM. NBU WILL OWN AND MAINTAIN SAID WATER / WASTEWATER MAINS WHICH ARE LOCATED WITHIN SAID PARTICULAR SUBDIVISION. (AS APPLICABLE).
4. CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNERS AND THE ENGINEER AND HIS EMPLOYEES, PARTNERS OFFICERS, DIRECTORS, OR CONSULTANTS HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF THE WORK ON THIS PROJECT, EXCEPTING FROM LIABILITY ARISING FROM SOLE NEGLIGENCE OF THE OWNER OR ENGINEER, ENGINEER'S DIRECTORS, OFFICERS, EMPLOYEES, OR CONSULTANTS.
5. CONTRACTOR AND / OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
6. CONTRACTOR SHALL BE RESPONSIBLE FOR RESTORING TO ITS ORIGINAL OR BETTER CONDITION, ANY DAMAGES DONE TO EXISTING FENCES, CURBS, STREETS, DRIVEWAYS, LANDSCAPING AND STRUCTURES, AND EXISTING UTILITIES (NOT ADJUSTED ON PLANS). COST OF RESTORATIONS, IF ANY, SHALL BE THE CONTRACTOR'S ENTIRE EXPENSE.
7. THE CONTRACTOR SHALL AVOID CUTTING ROOTS LARGER THAN ONE INCH IN DIAMETER WHEN EXCAVATING NEAR EXISTING TREES. EXCAVATION IN VICINITY OF TREES SHALL PROCEED WITH CAUTION.
8. CONTRACTOR SHALL PROCURE ALL PERMITS AND LICENSES, PAY ALL CHARGES, FEES AND TAXES AND GIVE ALL NOTICES NECESSARY AND INCIDENTAL TO THE DUE AND LAWFUL PROSECUTION OF THE WORK.
9. NO EXTRA PAYMENT SHALL BE ALLOWED FOR WORK CALLED FOR ON THE PLANS BUT NOT INCLUDED ON THE BID SCHEDULE. THIS INCIDENTAL WORK WILL BE REQUIRED AND SHALL BE INCLUDED UNDER THE PAY ITEM TO WHICH IT RELATES.
10. CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL WASTE MATERIALS UPON PROJECT COMPLETION. THE CONTRACTOR SHALL NOT PERMANENTLY PLACE ANY WASTE MATERIALS IN THE 100-YEAR FLOOD PLAIN WITHOUT FIRST OBTAINING AN APPROVED FLOOD PLAIN DEVELOPMENT PERMIT.
11. THE CONTRACTOR SHALL NOT PLACE ANY MATERIALS ON THE RECHARGE ZONE OF THE EDWARDS AQUIFER WITHOUT AN APPROVED WATER POLLUTION ABATEMENT PLAN FROM THE TCEQ 31 TAC 313.4 AND 31 TAC 313.9.
12. BARRICADES AND WARNING SIGNS SHALL CONFORM TO THE "TEXAS MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES" AND SHALL BE LOCATED TO PROVIDE MAXIMUM PROTECTION TO THE PUBLIC AS WELL AS CONSTRUCTION PERSONNEL AND EQUIPMENT WHILE PROVIDING CONTINUOUS TRAFFIC FLOW AT ALL TIMES DURING CONSTRUCTION. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ALL DEVICES DURING CONSTRUCTION.
13. CONTRACTOR IS REQUIRED TO VERIFY PROJECT ELEVATIONS. THE TERM 'MATCH EXISTING' SHALL BE UNDERSTOOD TO SIGNIFY BOTH HORIZONTAL AND VERTICAL ALIGNMENT.
14. THE LOCATION OF UTILITIES, EITHER UNDERGROUND OR OVERHEAD, SHOWN WITHIN THE RIGHT OF WAY ARE APPROXIMATE AND SHALL BE VERIFIED BY THE CONTRACTOR BEFORE BEGINNING CONSTRUCTION OPERATIONS.
15. OSHA REGULATIONS PROHIBIT OPERATIONS THAT WILL BRING PERSONS OR EQUIPMENT WITHIN 10 FEET OF AN ENERGIZED LINE. WHERE WORKMEN AND/OR EQUIPMENT HAVE TO WORK CLOSE TO AN ENERGIZED ELECTRICAL LINE, THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL POWER COMPANY INVOLVED AND MAKE WHATEVER ADJUSTMENTS NECESSARY TO ENSURE THE SAFETY OF THOSE WORKMEN.
16. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOCATE UTILITY SERVICE LINES AS REQUIRED FOR CONSTRUCTION. UTILITY COMPANIES ARE ALSO PREVIOUSLY MENTIONED IN 'UTILITY COMPANY NOTIFICATION'.
17. DUE TO FEDERAL REGULATIONS TITLE 49, PART 192 (8), GAS COMPANIES MUST MAINTAIN ACCESS TO GAS VALVES AT ALL TIMES. THE CONTRACTOR MUST PROTECT AND WORK AROUND ANY GAS VALVES THAT ARE IN THE PROJECT AREA.
18. THE CONTRACTOR IS FULLY RESPONSIBLE FOR THE TRAFFIC CONTROL AND WILL BE RESPONSIBLE FOR FURNISHING ALL TRAFFIC CONTROL DEVICES, AND FLAGGERS. THE CONSTRUCTION METHODS SHALL BE CONDUCTED TO PROVIDE THE LEAST POSSIBLE INTERFERENCE TO TRAFFIC SO AS TO PERMIT THE CONTINUOUS MOVEMENT OF THE TRAFFIC IN ONE DIRECTION AT ALL TIMES. THE CONTRACTOR SHALL CLEAN UP AND REMOVE FROM THE WORK AREA ANY LOOSE MATERIAL RESULTING FROM CONTRACT OPERATIONS AT THE END OF EACH WORKDAY.
19. PRIOR TO ORDERING MATERIALS TO BE USED IN CONSTRUCTION, CONTRACTOR SHALL PROVIDE THE ENGINEER WITH FOUR (4) COPIES OF THE SOURCE, TYPE, GRADATION, MATERIAL SPECIFICATION DATA AND / OR SHOP DRAWINGS, AS APPLICABLE, TO SATISFY THE REQUIREMENTS OF THE FOLLOWING ITEMS AND ALL MATERIAL ITEMS REFERRED TO IN THESE LISTED ITEMS:
    19.1. WATER MAINS AND SERVICES
    19.2. SEWER MAINS AND SERVICES
20. NO METER BOXES TO BE SET IN DRIVEWAYS. ANY METER BOXES SET IN DRIVEWAYS WILL BE RELOCATED AT CONTRACTOR'S AND/OR DEVELOPER'S EXPENSE.
21. WHERE THE MINIMUM 9 FOOT SEPARATION DISTANCE BETWEEN SEWER LINES AND WATER LINES / MAINS CANNOT BE MAINTAINED, THE INSTALLATION OF SEWER LINES SHALL BE IN STRICT ACCORDANCE WITH TCEQ.
22. CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/GEOTECHNICAL/SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITE(S) WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND/OR PROCEDURES. THE CONTRACTOR'S IMPLEMENTATION OF THE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLIES WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.
23. UTILITY TRENCH COMPACTION WITH STREET R.O.W.
    1. ALL UTILITY TRENCH COMPACTION TEST WITHIN THE STREET PAVEMENT SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEO-TECHNICAL ENGINEER.
    2. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12') LOOSE.
    3. EACH LAYER OF MATERIAL SHALL BE COMPACTED AS SPECIFIED AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEXT METHODS TEX-113-E, TEX-114-E, TEX-115-E.
    4. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEO-TECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR.
    5. UPON COMPLETION OF TESTING THE GEO-TECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS.

NO.	REVISION	DATE

8-8-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #10028800

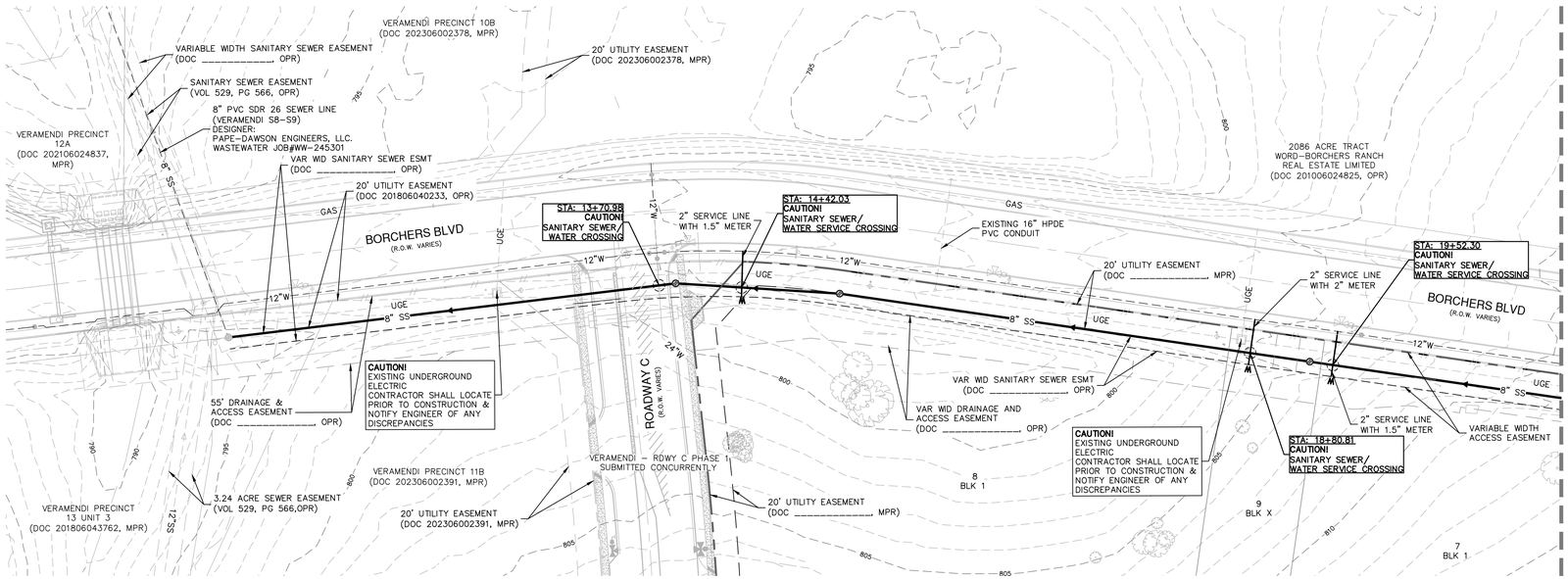
VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
SANITARY SEWER NOTES

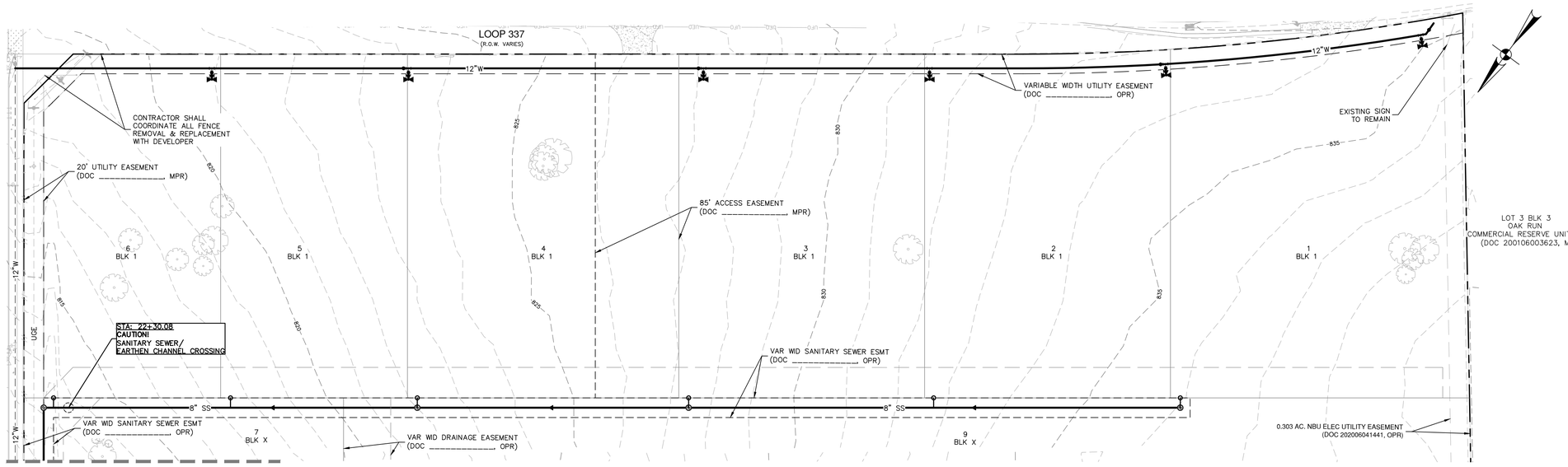
PLAT NO.
JOB NO. 30001-81
DATE AUGUST 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C5.20

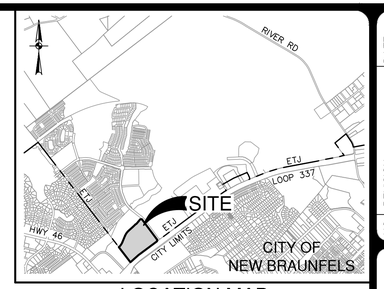
Date: March 13, 2024, 2:33 PM – User ID: ckowalski
File: P:\300\01\81\Design\Civil\SSNT-30001-81.dwg

WATER (NBU JOB NO. W-245133)		
ITEM	UNIT	QUANTITY
12" WATER LINE	LF	1451
LUEs	EA	48
FIRE HYDRANT	EA	1
6" GATE VALVE	EA	1
12" GATE VALVE	EA	4
2" SERVICE LINE WITH 1.5" METER	EA	2
2" SERVICE LINE WITH 2" METER	EA	1

WASTEWATER (NBU JOB NO. WW-245134)		
ITEM	UNIT	QUANTITY
8" SANITARY SEWER PIPE	LF	2,361
LUEs	EA	48
48" MANHOLES	EA	7
8" SANITARY SEWER LATERALS	LF	60







LOCATION MAP

NOT-TO-SCALE

SCALE: 1"= 60'

0' 60' 120' 180'

UTILITY LEGEND

- PROJECT LIMITS
- EXISTING FIRE HYDRANT
- EXISTING WATER — W —
- EXISTING UNDERGROUND ELECTRIC — UGE —
- EXISTING GAS — G —
- EXISTING SEWER — SS —
- PROPOSED SEWER — SS — MANHOLE
- PROPOSED WATER — W — FIRE HYDRANT
- PROPOSED WYE & LATERAL
- SINGLE WATER SERVICE
- STREET LIGHTS SL
- PROPOSED STORM DRAIN
- EXISTING STORM DRAIN
- PROPOSED GAS — G —
- PROPOSED UNDERGROUND ELECTRIC — UGE —
- EXISTING TREE TO REMAIN

CITY OF NEW BRAUNFELS NOTES

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3. THIS PROJECT INCLUDES UTILITY INSTALLATIONS GREATER THAN 5-FEET IN DEPTH. DEEP TRENCHES POSE COMPACTION TESTING AND CONSTRUCTION CHALLENGES AND CITY METHODS FOR TESTING AND COMPACTION MAY NOT BE ACHIEVABLE. A UTILITY COMPACTION PLAN WILL BE REQUIRED AND MUST BE SUBMITTED FOR APPROVAL TO CITY PRIOR TO UTILITY INSTALLATION.
4. UTILITY TRENCH COMPACTION – ALL UTILITY TRENCH COMPACTION TESTS WITHIN THE STREET PAVEMENT/SIDEWALK SECTION SHALL BE THE RESPONSIBILITY OF THE DEVELOPER'S GEOTECHNICAL ENGINEER. FILL MATERIAL SHALL BE PLACED IN UNIFORM LAYERS NOT TO EXCEED TWELVE INCHES (12") LOOSE. DETERMINE THE MAXIMUM LIFT THICKNESS BASED ON THE ABILITY OF THE COMPACTING OPERATION AND EQUIPMENT USED TO MEET THE REQUIRED DENSITY. EACH LAYER OF MATERIAL SHALL BE COMPACTED TO A MINIMUM 95% DENSITY AND TESTED FOR DENSITY AND MOISTURE IN ACCORDANCE WITH TEST METHODS TEX-113-E, TEX-114-E, TEX-115-E. THE NUMBER AND LOCATION OF REQUIRED TESTS SHALL BE DETERMINED BY THE GEOTECHNICAL ENGINEER AND APPROVED BY THE CITY OF NEW BRAUNFELS STREET INSPECTOR. AT A MINIMUM, TESTS SHALL BE TAKEN EVERY 200 LF FOR EACH LIFT AND EVERY OTHER SERVICE LINE. UPON COMPLETION OF TESTING THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CITY OF NEW BRAUNFELS STREET INSPECTOR WITH ALL TESTING DOCUMENTATION AND A CERTIFICATION STATING THAT THE PLACEMENT OF FILL MATERIAL HAS BEEN COMPLETED IN ACCORDANCE WITH THE PLANS. ADDITIONAL DENSITY TESTS MAY BE REQUESTED BY THE CITY OF NEW BRAUNFELS INSPECTOR.

CAUTION!!

CONTRACTOR SHALL BE REQUIRED TO LOCATE ALL PUBLIC OR PRIVATE UTILITIES INCLUDING BUT NOT LIMITING TO: WATER, SEWER, TELEPHONE AND FIBER OPTIC LINES, SITE LIGHTING ELECTRIC, SECONDARY ELECTRIC, PRIMARY ELECTRICAL DUCTBANKS, LANDSCAPE IRRIGATION FACILITIES, AND GAS LINES. ANY UTILITY CONFLICTS THAT ARISE SHOULD BE COMMUNICATED TO THE ENGINEER IMMEDIATELY AND PRIOR TO CONSTRUCTION. THE CONTRACTOR SHALL CONTACT "TEXAS 811" A MINIMUM OF 48 HOURS PRIOR TO THE START OF CONSTRUCTION. ANY DAMAGE TO EXISTING UTILITIES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR AND THE REPAIR SHALL BE AT CONTRACTOR'S SOLE EXPENSE WHETHER THE UTILITY IS SHOWN ON THESE PLANS OR NOT.

TRENCH EXCAVATION SAFETY PROTECTION:

CONTRACTOR AND/ OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR STRUCTURAL DESIGN/ GEOTECHNICAL/ SAFETY/EQUIPMENT CONSULTANT, IF ANY, SHALL REVIEW THESE PLANS AND ANY AVAILABLE GEOTECHNICAL INFORMATION AND THE ANTICIPATED INSTALLATION SITES WITHIN THE PROJECT WORK AREA IN ORDER TO IMPLEMENT CONTRACTOR'S TRENCH EXCAVATION SAFETY PROTECTION SYSTEMS, PROGRAMS AND /OR PROCEDURES FOR THE PROJECT DESCRIBED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR'S IMPLEMENTATION OF THESE SYSTEMS, PROGRAMS AND/OR PROCEDURES SHALL PROVIDE FOR ADEQUATE TRENCH EXCAVATION SAFETY PROTECTION THAT COMPLY WITH AS A MINIMUM, OSHA STANDARDS FOR TRENCH EXCAVATIONS. SPECIFICALLY, CONTRACTOR AND/OR CONTRACTOR'S INDEPENDENTLY RETAINED EMPLOYEE OR SAFETY CONSULTANT SHALL IMPLEMENT A TRENCH SAFETY PROGRAM IN ACCORDANCE WITH OSHA STANDARDS GOVERNING THE PRESENCE AND ACTIVITIES OF INDIVIDUALS WORKING IN AND AROUND TRENCH EXCAVATION.

NO.	REVISION	DATE

12-11-2024

STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED
PROFESSIONAL ENGINEER

PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5603
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288800

VERAMENDI PRECINCT 11A

NEW BRAUNFELS, TEXAS

OVERALL UTILITY PLAN

PLAT NO.
JOB NO. 30001-81
DATE DECEMBER 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C6.00

Date: March 13, 2024, 4:41 PM – User ID: MGarceres
File: P:\300\01\81\Design\Civil\UTOA-30001-81.dwg

NOTE:
1. THE FENCING SHOWN ABOVE IS DIAGRAMATIC ONLY, WILL CONFORM TO THE DRIP LINE AND IS LIMITED TO PROJECT BOUNDARY.

2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECS.

3. CHAIN LINK FENCE SHALL BE ERECTED PRIOR TO ANY CLEARING, GRUBBING OR SITE WORK OF ANY KIND. FENCING SHALL STAY ERECTED UNTIL FINAL LANDSCAPE OPERATIONS COMMENCE.

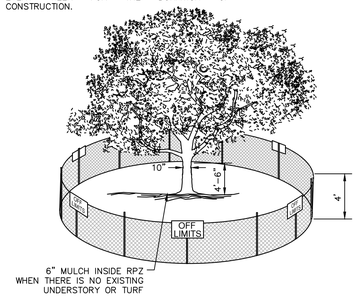
4. ANY PRUNING TO PROVIDE CLEARANCE TO PRESERVED TREES MUST BE APPROVED BY A CERTIFIED ARBORIST.

5. DO NOT REMOVE ANY TREES OVER 1" CALIPER WITHIN THE TREE PROTECTION FENCING OR OUTSIDE THE LIMITS OF CONSTRUCTION.

6. TREE ROOT CUTS SHALL BE MECHANICALLY CUT AT THE DIRECTION OF A CERTIFIED ARBORIST. CUTS SHALL BE CLEAN CUTS, WITHOUT PULLING OR TEARING.

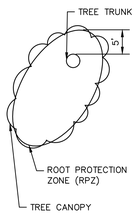
7. CONTRACTOR SHALL PLACE AND MAINTAIN 3" OF MULCH AROUND THE BASE OF THE TREE.

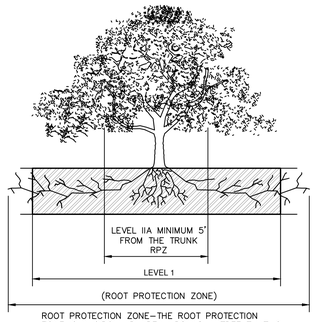
8. CONTRACTOR SHALL WATER THE TREE 1" EVERY WEEK FOR THE DURATION OF CONSTRUCTION.



6" MULCH INSIDE RPZ
WHEN THERE IS NO EXISTING UNDERSTORY OR TURF

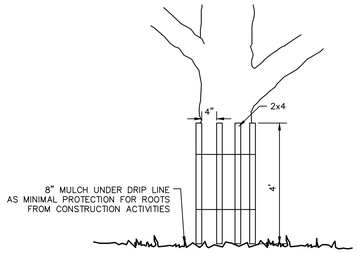
TREE PROTECTION ZONE
NOT TO SCALE





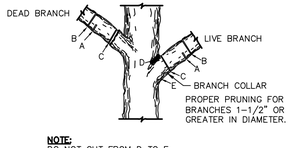
ROOT PROTECTION ZONE–THE ROOT PROTECTION ZONE IS A CIRCULAR AREA AROUND A TREE THAT IS BASED ON THE DIAMETER OF THE TREE. EACH 1 INCH DIAMETER OF THE TREE EQUALS 1 FOOT RADIUS FOR ROOT PROTECTION ZONE.

ELEVATION
NOT TO SCALE



NOTE:
WRAP TREE TRUCK WITH 2"X4" STUDS AND ROPE OR BAND IN PLACE AS NEEDED TO PROTECT TREES IN WORK AREAS.

LEVEL II B FENCE PROTECTION
NOT TO SCALE



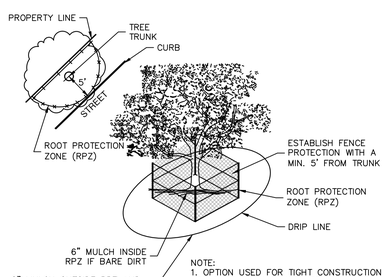
PROPER PRUNING FOR BRANCHES 1-1/2" OR GREATER IN DIAMETER.

NOTE:
DO NOT CUT FROM D TO E.

A. FIRST CUT – TO PREVENT THE BARK FROM BEING PEELED WHEN THE BRANCH FALLS.
B. SECOND CUT – TO REDUCE THE WEIGHT OF BRANCH.
C. FINAL CUT – ALLOW FOR HEALING COLLAR BUT NO STUBS

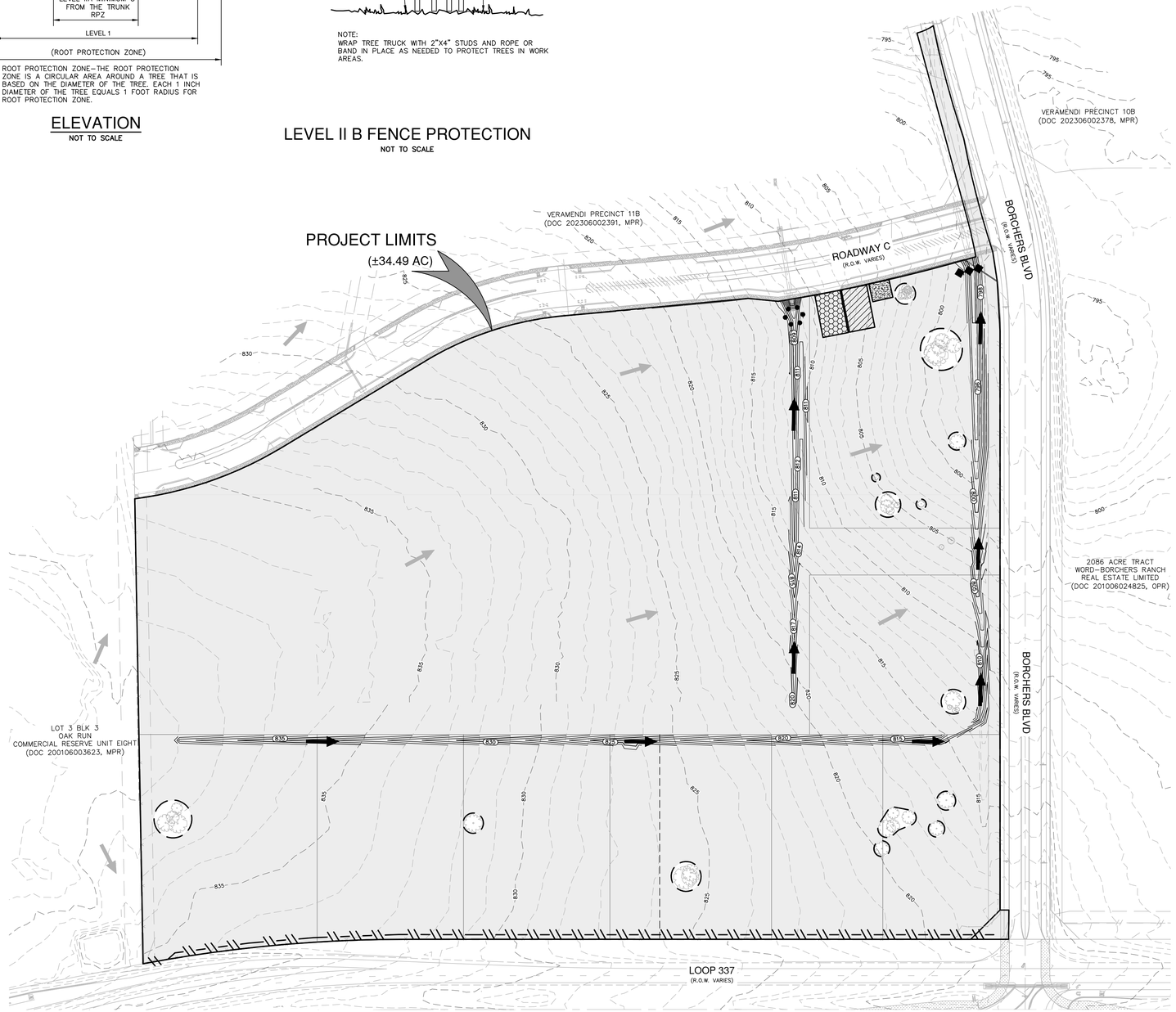
FOR OAKS ONLY:
PAINT ALL WOUNDS OR CUTS WITH PRUNING PAINT WITHIN 20 MIN TO PREVENT THE SPREAD OF OAK WILT.

BRANCH PRUNING
NOT TO SCALE



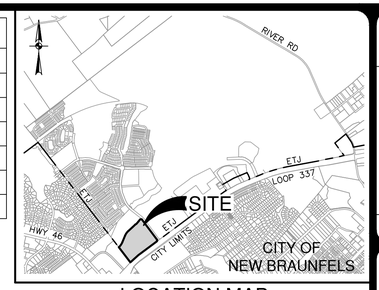
NOTE:
1. OPTION USED FOR TIGHT CONSTRUCTION AREAS OR WHEN CONSTRUCTION OCCURS IN ROOT PROTECTION ZONE.
2. FOR ACCEPTABLE FENCING MATERIALS SEE SPECIFICATIONS.

LEVEL II A FENCE PROTECTION
NOT TO SCALE



SWP3 MODIFICATIONS

DATE	SIGNATURE	DESCRIPTION



LOCATION MAP
NOT-TO-SCALE

0' 100' 200' 300'
SCALE: 1" = 100'

SWPPP LEGEND

- PROJECT LIMITS
- EXISTING CONTOUR (976)
- PROPOSED CONTOUR (970)
- FLOW ARROW (EXISTING)
- FLOW ARROW (PROPOSED)
- SILT FENCE
- TREE PROTECTION
- ROCK BERM
- GRAVEL FILTER BAGS
- GRATE INLET PROTECTION
- SEDIMENT CONTROL ROLLS
- LIMITS OF DISTURBED AREA
- STABILIZED CONSTRUCTION ENTRANCE/EXIT (FIELD LOCATE)
- CONSTRUCTION EQUIPMENT, VEHICLE & MATERIALS STORAGE AREA (FIELD LOCATE)
- CONCRETE TRUCK WASH-OUT PIT (FIELD LOCATE)
- EXISTING TREE TO REMAIN

GENERAL NOTES

1. DO NOT DISTURB VEGETATED AREAS (TREES, GRASS, WEEDS, BRUSH, ETC.) ANY MORE THAN NECESSARY FOR CONSTRUCTION.

2. CONSTRUCTION ENTRANCE/EXIT LOCATION, CONCRETE WASH-OUT PIT, AND CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD TO BE DETERMINED IN THE FIELD.

3. STORM WATER POLLUTION PREVENTION CONTROLS MAY NEED TO BE MODIFIED IN THE FIELD TO ACCOMPLISH THE DESIRED EFFECT. ALL MODIFICATIONS ARE TO BE NOTED ON THIS EXHIBIT AND SIGNED AND DATED BY THE RESPONSIBLE PARTY.

4. RESTRICT ENTRY/EXIT TO THE PROJECT SITE TO DESIGNATED LOCATIONS BY USE OF ADEQUATE FENCING, IF NECESSARY.

5. ALL STORM WATER POLLUTION PREVENTION CONTROLS ARE TO BE MAINTAINED AND IN WORKING CONDITIONS AT ALL TIMES.

6. FOR A COMPLETE LISTING OF TEMPORARY STORM WATER POLLUTION PREVENTION CONTROLS REFER TO THE TPDES STORM WATER POLLUTION PREVENTION PLAN.

7. STORM WATER POLLUTION PREVENTION STRUCTURES SHOULD BE CONSTRUCTED WITHIN THE SITE BOUNDARIES. SOME OF THESE FEATURES MAY BE SHOWN OUTSIDE THE SITE BOUNDARIES ON THIS PLAN FOR VISUAL CLARITY.

8. AS SOON AS PRACTICAL, ALL DISTURBED SOIL THAT WILL NOT BE COVERED BY IMPERVIOUS COVER SUCH AS PARKWAY AREAS, EASEMENT AREAS, EMBANKMENT SLOPES, ETC. WILL BE STABILIZED PER APPLICABLE PROJECT SPECIFICATIONS.

9. BEST MANAGEMENT PRACTICES MAY BE INSTALLED IN STAGES TO COINCIDE WITH THE DISTURBANCE OF UPGRADIENT AREAS.

10. BEST MANAGEMENT PRACTICES MAY BE REMOVED IN STAGES ONCE THE WATERSHED FOR THAT PORTION CONTROLLED BY THE BEST MANAGEMENT PRACTICES HAS BEEN STABILIZED IN ACCORDANCE WITH TPDES REQUIREMENTS.

11. UPON COMPLETION OF THE PROJECT, INCLUDING SITE STABILIZATION, AND BEFORE FINAL PAYMENT IS ISSUED, CONTRACTOR SHALL REMOVE ALL SEDIMENT AND EROSION CONTROL MEASURES, PAYING SPECIAL ATTENTION TO ROCK BERMS IN DRAINAGE FEATURES.

12. WHERE VEGETATED FILTER STRIPS ARE INDICATED, CONTRACTOR SHALL VERIFY THAT SUFFICIENT VEGETATION EXISTS, OTHERWISE CONTRACTOR SHALL PLACE SILT FENCING IN LIEU OF VEGETATED FILTER STRIP.

13. SHADED AREA ▭ DENOTES LIMITS OF DISTURBED AREAS. OTHER AREAS WITHIN THE PROJECT LIMITS, WITH THE EXCEPTION OF A CONSTRUCTION EQUIPMENT AND MATERIAL STORAGE YARD, ARE NOT A PART OF THIS TPDES STORM WATER POLLUTION PREVENTION PLAN (SWP3) AND WILL NOT BE DISTURBED BY CIVIL CONSTRUCTION ACTIVITIES. HOUSE CONSTRUCTION ACTIVITIES WILL REQUIRE A SEPARATE STORM WATER POLLUTION PREVENTION PLAN.

14. PRIOR TO BEGINNING CONSTRUCTION, CONTRACTOR SHALL COORDINATE PLACEMENT OF TEMPORARY BEST MANAGEMENT PRACTICES WITHIN TXDOT RIGHT-OF-WAY WITH TXDOT.

15. NBU WILL FUNCTION AS A SECONDARY OPERATOR ON THIS PROJECT AND WILL BE INSTALLING ELECTRIC UTILITIES FOR ON-SITE CONSTRUCTION AND OFF-SITE FEED TO THE PROJECT.

16. PER TPDES REQUIREMENTS, DISTURBED AREAS ON WHICH CONSTRUCTION ACTIVITIES HAVE CEASED (TEMPORARILY OR PERMANENTLY) SHALL BE STABILIZED WITHIN 14 DAYS UNLESS ACTIVITY RESUMES WITHIN 21 DAYS. SEEDING DOES NOT CONSTITUTE AS STABILIZATION.

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES–STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 2

NO.	REVISION	DATE

2-14-2025
STATE OF TEXAS
JOCELYN PEREZ
98367
LICENSED PROFESSIONAL ENGINEER

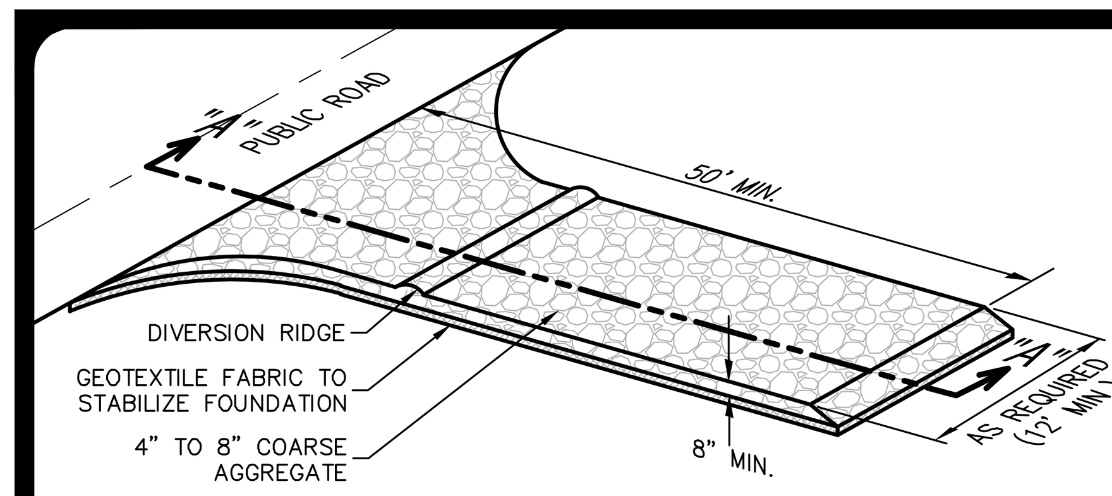
PAPE-DAWSON ENGINEERS
672 INDEPENDENCE DR, STE 102 | NEW BRAUNFELS, TX 78132 | 830.632.5633
TEXAS ENGINEERING FIRM #470 | TEXAS SURVEYING FIRM #100288-00

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS

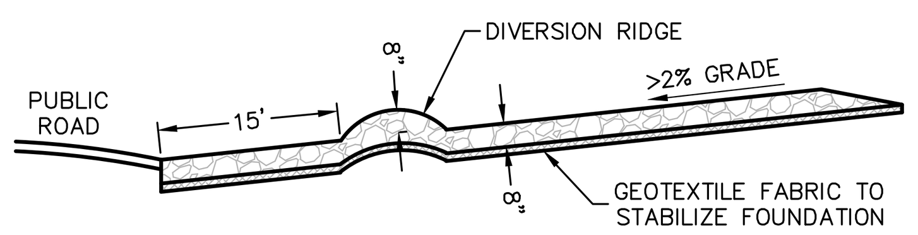
STORM WATER POLLUTION PREVENTION PLAN

PLAT NO.
JOB NO. 30001-81
DATE FEBRUARY 2025
DESIGNER CP
CHECKED JL DRAWN CP
SHEET C8.00

Date: March 13, 2024, 2:22 PM – User ID: glatimer
File: P:\300\01\81\Design\Civil\SWPPP_30001-81.dwg



SCHEMATIC OF TEMPORARY CONSTRUCTION ENTRANCE/EXIT



SECTION "A-A" OF A CONSTRUCTION ENTRANCE/EXIT

MATERIALS

1. THE AGGREGATE SHOULD CONSIST OF 4-INCH TO 8-INCH WASHED STONE OVER A STABLE FOUNDATION AS SPECIFIED IN THE PLAN.

2. THE AGGREGATE SHOULD BE PLACED WITH A MINIMUM THICKNESS OF 8-INCHES.

3. THE GEOTEXTILE FABRIC SHOULD BE DESIGNED SPECIFICALLY FOR USE AS A SOIL FILTRATION MEDIA WITH AN APPROXIMATE WEIGHT OF 6 OZ/YD², A MULLEN BURST RATING OF 140 LB/IN², AND AN EQUIVALENT OPENING SIZE GREATER THAN A NUMBER 50 SIEVE.

4. IF A WASHING FACILITY IS REQUIRED, A LEVEL AREA WITH A MINIMUM OF 4-INCH DIAMETER WASHED STONE OR COMMERCIAL ROCK SHOULD BE INCLUDED IN THE PLANS. DIVERT WASTEWATER TO A SEDIMENT TRAP OR BASIN.

INSTALLATION

1. AVOID CURVES ON PUBLIC ROADS AND STEEP SLOPES. REMOVE VEGETATION AND OTHER OBJECTIONABLE MATERIAL FROM THE FOUNDATION AREA. GRADE CROWN FOUNDATION FOR POSITIVE DRAINAGE.

2. THE MINIMUM WIDTH OF THE ENTRANCE/EXIT SHOULD BE 12 FEET OR THE FULL WIDTH OF EXIT ROADWAY, WHICHEVER IS GREATER.

3. THE CONSTRUCTION ENTRANCE SHOULD BE AT LEAST 50 FEET LONG.

4. IF THE SLOPE TOWARD THE ROAD EXCEEDS 2%, CONSTRUCT A RIDGE, 6-INCHES TO 8-INCHES HIGH WITH 3:1 (H:V) SIDE SLOPES, ACROSS THE FOUNDATION APPROXIMATELY 15 FEET FROM THE ENTRANCE TO DIVERT RUNOFF AWAY FROM THE PUBLIC ROAD.

5. PLACE GEOTEXTILE FABRIC AND GRADE FOUNDATION TO IMPROVE STABILITY, ESPECIALLY WHERE WET CONDITIONS ARE ANTICIPATED.

6. PLACE STONE TO DIMENSIONS AND GRADE SHOWN ON PLANS. LEAVE SURFACE SMOOTH AND SLOPE FOR DRAINAGE.

7. DIVERT ALL SURFACE RUNOFF AND DRAINAGE FROM THE STONE PAD TO A SEDIMENT TRAP OR BASIN.

8. INSTALL PIPE UNDER PAD AS NEEDED TO MAINTAIN PROPER PUBLIC ROAD DRAINAGE.

COMMON TROUBLE POINTS

1. INADEQUATE RUNOFF CONTROL-SEDIMENT WASHES ONTO PUBLIC ROAD.

2. STONE TOO SMALL OR GEOTEXTILE FABRIC ABSENT, RESULTS IN MUDDY CONDITION AS STONE IS PRESSED INTO SOIL.

3. PAD TOO SHORT FOR HEAVY CONSTRUCTION TRAFFIC-EXTEND PAD BEYOND THE MINIMUM 50-FOOT LENGTH AS NECESSARY.

4. PAD NOT FLARED SUFFICIENTLY AT ROAD SURFACE, RESULTS IN MUD BEING TRACKED ON TO ROAD AND POSSIBLE DAMAGE TO ROAD.

5. UNSTABLE FOUNDATION - USE GEOTEXTILE FABRIC UNDER PAD AND/OR IMPROVE FOUNDATION DRAINAGE.

INSPECTION AND MAINTENANCE GUIDELINES

1. THE ENTRANCE SHOULD BE MAINTAINED IN A CONDITION, WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.

2. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY SHOULD BE REMOVED IMMEDIATELY BY CONTRACTOR.

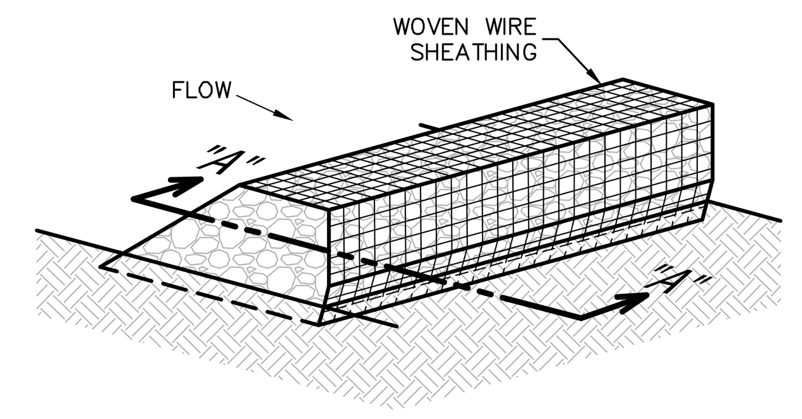
3. WHEN NECESSARY, WHEELS SHOULD BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.

4. WHEN WASHING IS REQUIRED, IT SHOULD BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

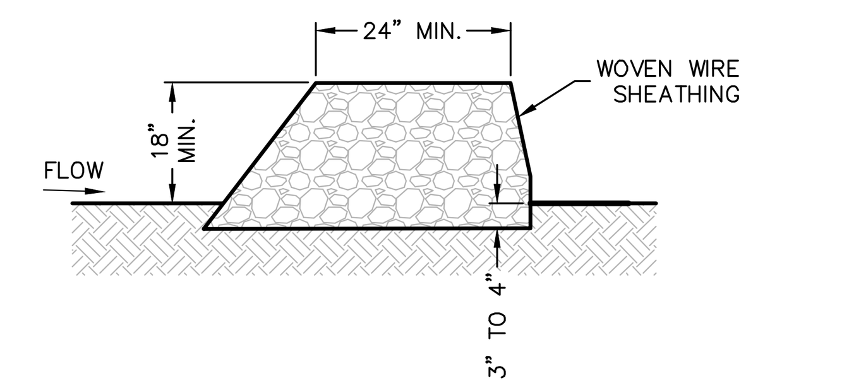
5. ALL SEDIMENT SHOULD BE PREVENTED FROM ENTERING ANY STORM DRAIN, DITCH OR WATER COURSE BY USING APPROVED METHODS.

STABILIZED CONSTRUCTION ENTRANCE/EXIT DETAIL

NOT-TO-SCALE



ISOMETRIC PLAN VIEW



SECTION "A-A"

ROCK BERMS

THE PURPOSE OF A ROCK BERM IS TO SERVE AS A CHECK DAM IN AREAS OF CONCENTRATED FLOW, TO INTERCEPT SEDIMENT-LADEN RUNOFF, DETAIN THE SEDIMENT AND RELEASE THE WATER IN SHEET FLOW. THE ROCK BERM SHOULD BE USED WHEN THE CONTRIBUTING DRAINAGE AREA IS LESS THAN 5 ACRES. ROCK BERMS ARE USED IN AREAS WHERE THE VOLUME OF RUNOFF IS TOO GREAT FOR A SILT FENCE TO CONTAIN. THEY ARE LESS EFFECTIVE FOR SEDIMENT REMOVAL THAN SILT FENCES, PARTICULARLY FOR FINE PARTICLES, BUT ARE ABLE TO WITHSTAND HIGHER FLOWS THAN A SILT FENCE. AS SUCH, ROCK BERMS ARE OFTEN USED IN AREAS OF CHANNEL FLOWS (DITCHES, GULLIES, ETC.). ROCK BERMS ARE MOST EFFECTIVE AT REDUCING BED LOAD IN CHANNELS AND SHOULD NOT BE SUBSTITUTED FOR OTHER EROSION AND SEDIMENT CONTROL MEASURES FARTHER UP THE WATERSHED.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL BY THE RESPONSIBLE PARTY. FOR INSTALLATIONS IN STREAMBEDS, ADDITIONAL DAILY INSPECTIONS SHOULD BE MADE.

2. REMOVE SEDIMENT AND OTHER DEBRIS WHEN BUILDUP REACHES 6 INCHES AND DISPOSE OF THE ACCUMULATED SILT IN AN APPROVED MANNER THAT WILL NOT CAUSE ANY ADDITIONAL SILTATION.

3. REPAIR ANY LOOSE WIRE SHEATHING.

4. THE BERM SHOULD BE RESHAPED AS NEEDED DURING INSPECTION.

5. THE BERM SHOULD BE REPLACED WHEN THE STRUCTURE CEASES TO FUNCTION AS INTENDED DUE TO SILT ACCUMULATION AMONG THE ROCKS, WASHOUT, CONSTRUCTION TRAFFIC DAMAGE, ETC.

6. THE ROCK BERM SHOULD BE LEFT IN PLACE UNTIL ALL UPSTREAM AREAS ARE STABILIZED AND ACCUMULATED SILT REMOVED.

MATERIALS

1. THE BERM STRUCTURE SHOULD BE SECURED WITH A WOVEN WIRE SHEATHING HAVING MAXIMUM OPENING OF 1 INCH AND A MINIMUM WIRE DIAMETER OF 20 GAUGE GALVANIZED AND SHOULD BE SECURED WITH SHOAT RINGS.

2. CLEAN, OPEN GRADED 3-INCH TO 5-INCH DIAMETER ROCK SHOULD BE USED, EXCEPT IN AREAS WHERE HIGH VELOCITIES OR LARGE VOLUMES OF FLOW ARE EXPECTED, WHERE 5-INCH TO 8-INCH DIAMETER ROCKS MAY BE USED.

INSTALLATION

1. LAY OUT THE WOVEN WIRE SHEATHING PERPENDICULAR TO THE FLOW LINE. THE SHEATHING SHOULD BE 20 GAUGE WOVEN WIRE MESH WITH 1 INCH OPENINGS.

2. BERM SHOULD HAVE A TOP WIDTH OF 2 FEET MINIMUM WITH SIDE SLOPES BEING 2:1 (H:V) OR FLATTER.

3. PLACE THE ROCK ALONG THE SHEATHING AS SHOWN IN THE DIAGRAM TO A HEIGHT NOT LESS THAN 18".

4. WRAP THE WIRE SHEATHING AROUND THE ROCK AND SECURE WITH TIE WIRE SO THAT THE ENDS OF THE SHEATHING OVERLAP AT LEAST 2 INCHES, AND THE BERM RETAINS ITS SHAPE WHEN WALKED UPON.

5. BERM SHOULD BE BUILT ALONG THE CONTOUR AT ZERO PERCENT GRADE OR AS NEAR AS POSSIBLE.

6. THE ENDS OF THE BERM SHOULD BE TIED INTO EXISTING UPSLOPE GRADE AND THE BERM SHOULD BE BURIED IN A TRENCH APPROXIMATELY 3 TO 4 INCHES DEEP TO PREVENT FAILURE OF THE CONTROL.

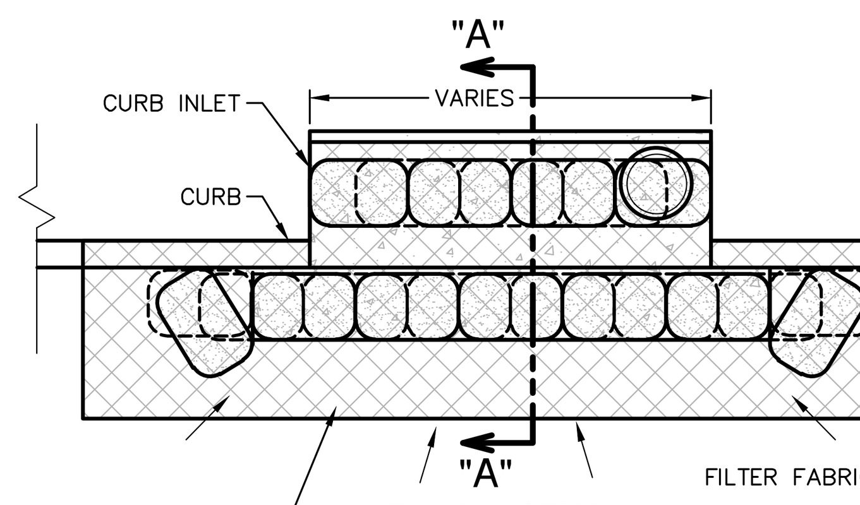
COMMON TROUBLE POINTS

1. INSUFFICIENT BERM HEIGHT OR LENGTH (RUNOFF QUICKLY ESCAPES OVER THE TOP OR AROUND THE SIDES OF BERM).

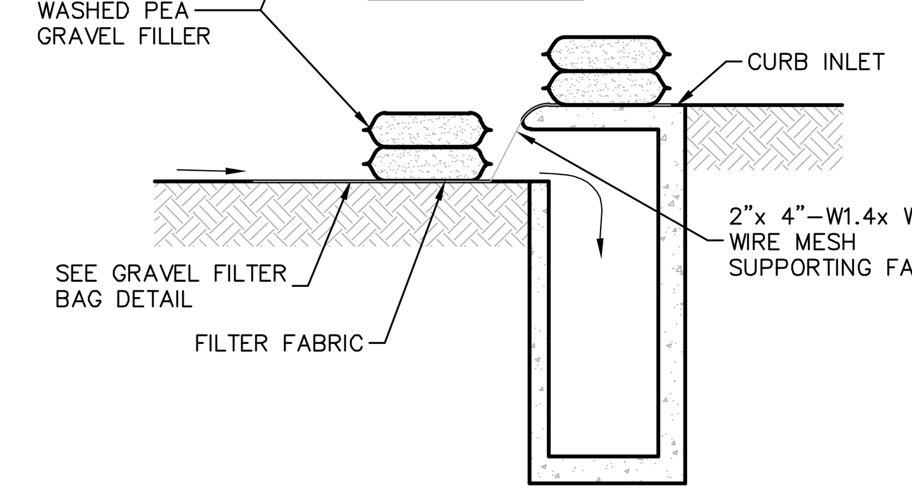
2. BERM NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND ONE SIDE).

ROCK BERM DETAIL

NOT-TO-SCALE



PLAN VIEW



SECTION "A-A"

GENERAL NOTES

1. CONTRACTOR TO INSTALL 2"x4"-W1.4xW1.4 WIRE MESH SUPPORTING FILTER FABRIC OVER THE INLET OPENING. FABRIC MUST BE SECURED TO WIRE BACKING WITH CLIPS OR WIRE TIES AT THIS LOCATION. SAND BAGS FILLED WITH WASHED PEA GRAVEL SHOULD BE PLACED ON TOP OF WIRE MESH ON TOP OF THE INLET AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SANDBAGS FILLED WITH WASHED PEA GRAVEL SHOULD ALSO BE PLACED ALONG THE GUTTER AS SHOWN ON THIS DETAIL TO HOLD WIRE MESH IN PLACE. SAND BAGS TO BE STACKED TO FORM A CONTINUOUS BARRIER AROUND INLETS.

2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT IT WILL NOT ERODE.

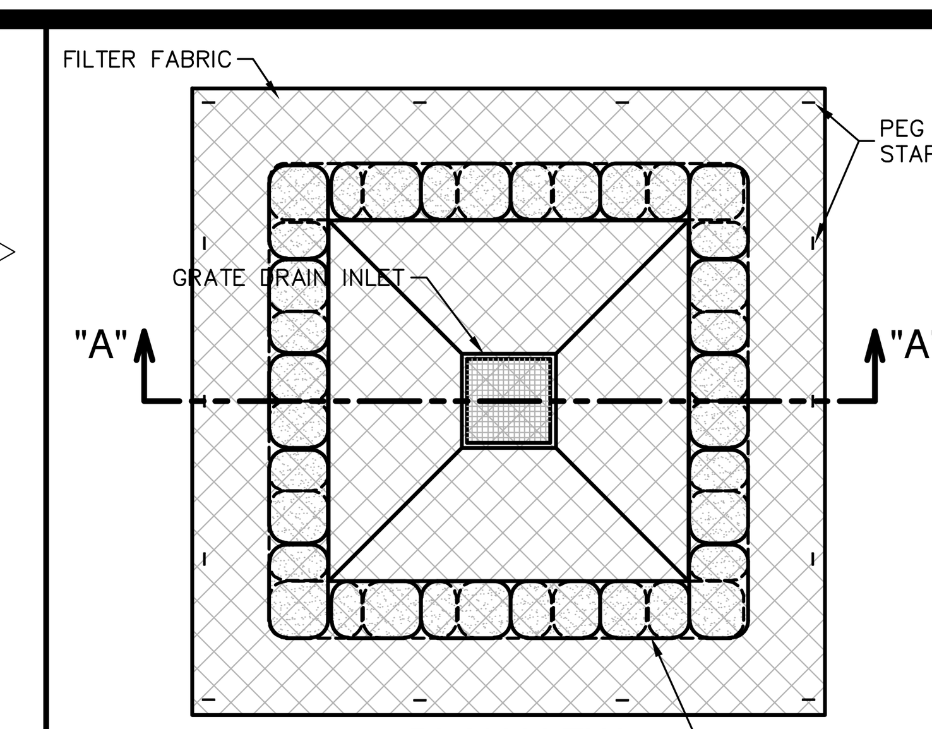
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.

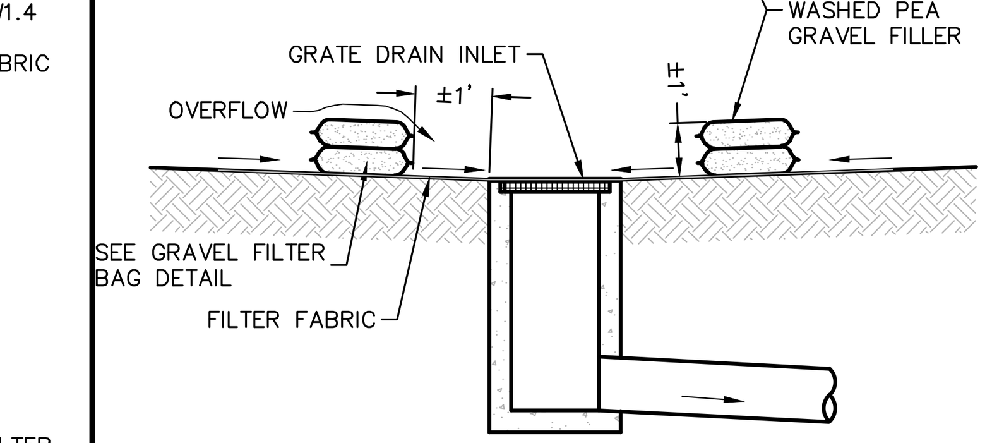
5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

BAGGED GRAVEL CURB INLET PROTECTION DETAIL

NOT-TO-SCALE



PLAN VIEW



SECTION "A-A"

GENERAL NOTES

1. THE SANDBAGS SHOULD BE FILLED WITH WASHED PEA GRAVEL AND STACKED TO FORM A CONTINUOUS BARRIER ABOUT 1 FOOT HIGH AROUND INLETS.

2. THE BAGS SHOULD BE TIGHTLY ABUTTED AGAINST EACH OTHER TO PREVENT RUNOFF FROM FLOWING BETWEEN THE BAGS.

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECTION SHOULD BE MADE WEEKLY AND AFTER EACH RAINFALL. REPAIR OR REPLACEMENT SHOULD BE MADE PROMPTLY AS NEEDED BY THE CONTRACTOR.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES A DEPTH OF 3 INCHES. REMOVED SEDIMENT SHOULD BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MATTER THAT IT WILL NOT ERODE.

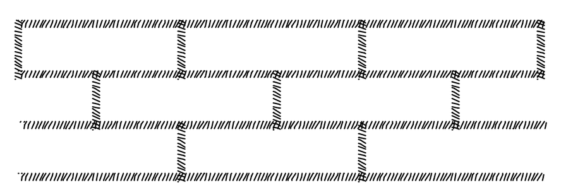
3. CHECK PLACEMENT OF DEVICE TO PREVENT GAPS BETWEEN DEVICE AND CURB.

4. INSPECT FILTER FABRIC AND PATCH OR REPLACE IF TORN OR MISSING.

5. STRUCTURES SHOULD BE REMOVED AND THE AREA STABILIZED ONLY AFTER THE REMAINING DRAINAGE AREA HAS BEEN PROPERLY STABILIZED.

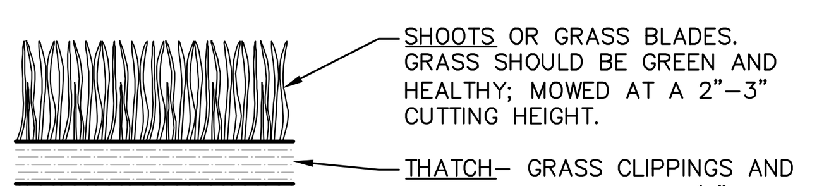
BAGGED GRAVEL GRATE INLET PROTECTION DETAIL

NOT-TO-SCALE



LAY SOD IN A STAGGERED PATTERN. BUTT THE STRIPS TIGHTLY AGAINST EACH OTHER. DO NOT LEAVE SPACES AND DO NOT OVERLAP. A SHARPENED MASON'S TROWEL IS A HANDY TOOL FOR TUCKING DOWN THE ENDS AND TRIMMING PIECES.

BUTTING - ANGLED ENDS CAUSED BY THE AUTOMATIC SOD CUTTER MUST BE MATCHED CORRECTLY.

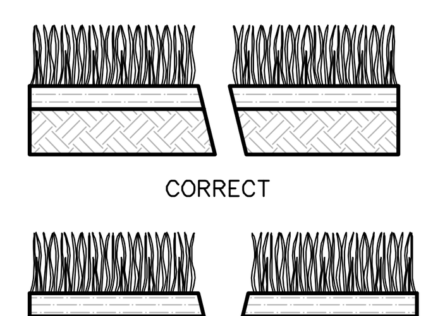


APPEARANCE OF GOOD SOD

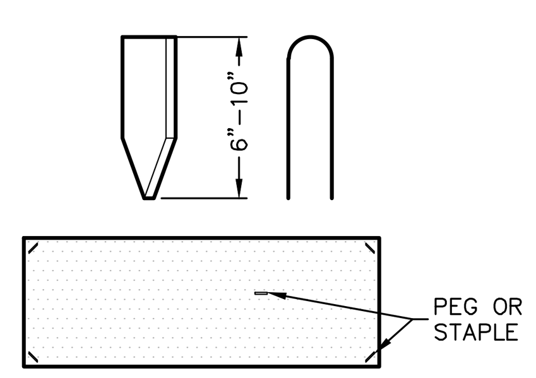
NOTES:
1. ROLL SOD IMMEDIATELY TO ACHIEVE FIRM CONTACT WITH THE SOIL.

2. WATER TO A DEPTH OF 4" AS NEEDED. WATER WELL AS SOON AS THE SOD IS LAID.

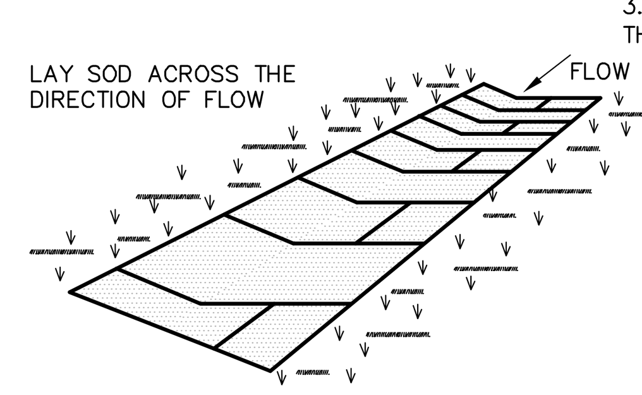
3. MOW WHEN THE SOD IS ESTABLISHED - IN 2-3 WEEKS. SET THE MOWER HIGH (2"-3").

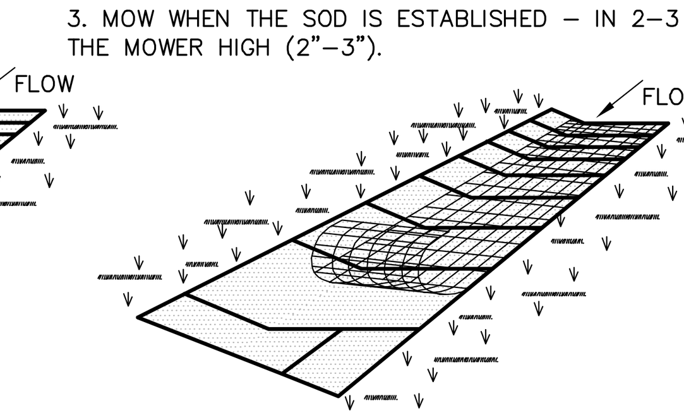


SOD INSTALLATION



USE PEGS OR STAPLES TO FASTEN SOD FIRMLY - AT THE ENDS OF STRIPS AND IN THE CENTER, OR EVERY 3-4 FEET IF THE STRIPS ARE LONG. WHEN READY TO MOW, DRIVE PEGS OR STAPLES FLUSH WITH THE GROUND.





IN CRITICAL AREAS, SECURE SOD WITH NETTING. USE STAPLES.

MATERIALS

1. SOD SHOULD BE MACHINE CUT AT A UNIFORM SOIL THICKNESS OF 3/4" INCH (± 1/4" INCH) AT THE TIME OF CUTTING. THIS THICKNESS SHOULD EXCLUDE SHOOT GROWTH AND THATCH.

2. PIECES OF SOD SHOULD BE CUT TO THE SUPPLIER'S STANDARD WIDTH AND LENGTH, WITH A MAXIMUM ALLOWABLE DEVIATION IN ANY DIMENSION OF 5%. TORN OR UNEVEN PADS SHOULD NOT BE ACCEPTABLE.

3. STANDARD SIZE SECTIONS OF SOD SHOULD BE STRONG ENOUGH TO SUPPORT THEIR OWN WEIGHT AND RETAIN THEIR SIZE AND SHAPE WHEN SUSPENDED FROM A FIRM GRASP ON ONE END OF THE SECTION.

4. SOD SHOULD BE HARVESTED, DELIVERED, AND INSTALLED WITHIN A PERIOD OF 36 HOURS.

SITE PREPARATION

1. PRIOR TO SOIL PREPARATION, AREAS TO BE SODDED SHOULD BE BROUGHT TO FINAL GRADE IN ACCORDANCE WITH THE APPROVED PLAN.

2. THE SURFACE SHOULD BE CLEARED OF ALL TRASH, DEBRIS AND OF ALL ROOTS, BRUSH, WIRE, GRADE STAKES AND OTHER OBJECTS THAT WOULD INTERFERE WITH PLANTING, FERTILIZING OR MAINTENANCE OPERATIONS.

3. FERTILIZE ACCORDING TO SOIL TESTS. FERTILIZER NEEDS CAN BE DETERMINED BY A SOIL TESTING LABORATORY OR REGIONAL RECOMMENDATIONS CAN BE MADE BY COUNTY AGRICULTURAL EXTENSION AGENTS. FERTILIZER SHOULD BE WORKED INTO THE SOIL TO A DEPTH OF 3 INCHES WITH A DISC, SPRINGTOOTH HARROW OR OTHER SUITABLE EQUIPMENT. ON SLOPING LAND, THE FINAL HARROWING OR DISCING OPERATION SHOULD BE ON THE CONTOUR.

INSTALLATION IN CHANNELS

1. SOD STRIPS IN WATERWAYS SHOULD BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW. CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY (SEE FIGURE ABOVE).

2. AFTER ROLLING OR TAMPING, SOD SHOULD BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. MESH OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

GENERAL INSTALLATION (VA. DEPT. OF CONSERVATION, 1992)

1. SOD SHOULD NOT BE CUT OR LAID IN EXCESSIVELY WET OR DRY WEATHER. SOD ALSO SHOULD NOT BE LAID ON SOIL SURFACES THAT ARE FROZEN.

2. DURING PERIODS OF HIGH TEMPERATURE, THE SOIL SHOULD BE LIGHTLY IRRIGATED IMMEDIATELY PRIOR TO LAYING THE SOD, TO COOL THE SOIL AND REDUCE ROOT BURNING AND DIEBACK.

3. THE FIRST ROW OF SOD SHOULD BE LAID IN A STRAIGHT LINE WITH SUBSEQUENT ROWS PLACED PARALLEL TO AND BUTTING TIGHTLY AGAINST EACH OTHER. LATERAL JOINTS SHOULD BE STAGGERED TO PROMOTE MORE UNIFORM GROWTH AND STRENGTH. CARE SHOULD BE EXERCISED TO ENSURE THAT SOD IS NOT STRETCHED OR OVERLAPPED AND THAT ALL JOINTS ARE BUTTED TIGHT IN ORDER TO PREVENT VOIDS WHICH WOULD CAUSE DRYING OF THE ROOTS (SEE FIGURE ABOVE).

4. ON SLOPES 3:1 OR GREATER, OR WHEREVER EROSION MAY BE A PROBLEM, SOD SHOULD BE LAID WITH STAGGERED JOINTS AND SECURED BY STAPLING OR OTHER APPROVED METHODS. SOD SHOULD BE INSTALLED WITH THE LENGTH PERPENDICULAR TO THE SLOPE (ON CONTOUR).

5. AS SODDING OF CLEARLY DEFINED AREAS IS COMPLETED, SOD SHOULD BE ROLLED OR TAMPED TO PROVIDE FIRM CONTACT BETWEEN ROOTS AND SOIL.

6. AFTER ROLLING, SOD SHOULD BE IRRIGATED TO A DEPTH SUFFICIENT THAT THE UNDERSIDE OF THE SOD PAD AND THE SOIL 4 INCHES BELOW THE SOD IS THOROUGHLY WET.

7. UNTIL SUCH TIME A GOOD ROOT SYSTEM BECOMES DEVELOPED, IN THE ABSENCE OF ADEQUATE RAINFALL, WATERING SHOULD BE PERFORMED AS OFTEN AS NECESSARY TO MAINTAIN MOIST SOIL TO A DEPTH OF AT LEAST 4 INCHES.

8. THE FIRST MOWING SHOULD NOT BE ATTEMPTED UNTIL THE SOD IS FIRMLY ROOTED, USUALLY 2-3 WEEKS. NOT MORE THAN ONE THIRD OF THE GRASS LEAF SHOULD BE REMOVED AT ANY ONE CUTTING.

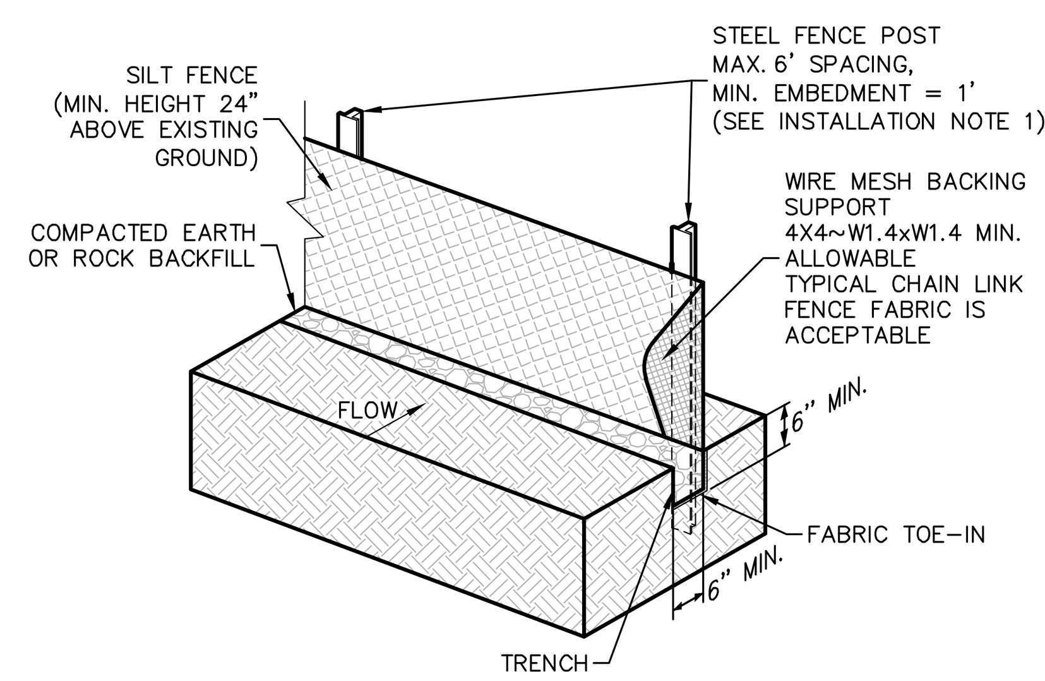
INSPECTION AND MAINTENANCE GUIDELINES

1. SOD SHOULD BE INSPECTED WEEKLY AND AFTER EACH RAIN EVENT TO LOCATE AND REPAIR ANY DAMAGE.

2. DAMAGE FROM STORMS OR NORMAL CONSTRUCTION ACTIVITIES SUCH AS TIRE RUTS OR DISTURBANCE OF SWALE STABILIZATION SHOULD BE REPAIRED AS SOON AS PRACTICAL.

SOD INSTALLATION DETAIL

NOT-TO-SCALE



ISOMETRIC PLAN VIEW

SILT FENCE

A SILT FENCE IS A BARRIER CONSISTING OF GEOTEXTILE FABRIC SUPPORTED BY METAL POSTS TO PREVENT SOIL AND SEDIMENT LOSS FROM A SITE. WHEN PROPERLY USED, SILT FENCES CAN BE HIGHLY EFFECTIVE AT CONTROLLING SEDIMENT FROM DISTURBED AREAS. THEY CAUSE RUNOFF TO POND, ALLOWING HEAVIER SOLIDS TO SETTLE OUT. IF NOT PROPERLY INSTALLED, SILT FENCES ARE NOT LIKELY TO BE EFFECTIVE.

THE PURPOSE OF A SILT FENCE IS TO INTERCEPT AND DETAIN WATER-BORN SEDIMENT FROM UNPROTECTED AREAS OF A LIMITED EXTENT. SILT FENCE IS USED DURING THE PERIOD OF CONSTRUCTION NEAR THE PERIMETER OF A DISTURBED AREA TO INTERCEPT SEDIMENT WHILE ALLOWING WATER TO PERCOLATE THROUGH. THIS FENCE SHOULD REMAIN IN PLACE UNTIL THE DISTURBED AREA IS PERMANENTLY STABILIZED. SILT FENCE SHOULD NOT BE USED WHERE THERE IS A CONCENTRATION OF WATER IN A CHANNEL OR DRAINAGE WAY. IF CONCENTRATED FLOW OCCURS AFTER INSTALLATION, CORRECTIVE ACTION MUST BE TAKEN SUCH AS PLACING A ROCK BERM IN THE AREAS OF CONCENTRATED FLOW.

SILT FENCING WITHIN THE SITE MAY BE TEMPORARILY MOVED DURING THE DAY TO ALLOW CONSTRUCTION ACTIVITY PROVIDED IT IS REPLACED AND PROPERLY ANCHORED TO THE GROUND AT THE END OF THE DAY. SILT FENCES ON THE PERIMETER OF THE SITE OR AROUND DRAINAGE WAYS SHOULD NOT BE MOVED AT ANY TIME.

MATERIALS

1. SILT FENCE MATERIAL SHOULD BE POLYPROPYLENE, POLYETHYLENE, OR POLYAMIDE WOVEN OR NONWOVEN FABRIC. THE FABRIC SHOULD BE 36 INCHES, WITH A MINIMUM UNIT WEIGHT OF 4.5 OZ/YD, MULLEN BURST STRENGTH EXCEEDING 190 LB/IN2, ULTRAVIOLET STABILITY EXCEEDING 70%, AND MINIMUM APPARENT OPENING SIZE OF U.S. SIEVE NUMBER 30.

2. FENCE POSTS SHOULD BE MADE OF HOT ROLLED STEEL, AT LEAST 4 FEET LONG WITH TEE OR Y-BAR CROSS SECTION, SURFACE PAINTED OR GALVANIZED, MINIMUM WEIGHT 1.25 LB/FT, AND BRINDELL HARDNESS EXCEEDING 140.

3. WOVEN WIRE BACKING TO SUPPORT THE FABRIC SHOULD BE GALVANIZED 2" X 4" WELDED WIRE, 12 GAUGE MINIMUM.

INSTALLATION

1. STEEL POSTS, WHICH SUPPORT THE SILT FENCE, SHOULD BE INSTALLED ON A SLIGHT ANGLE TOWARD THE ANTICIPATED RUNOFF SOURCE. POSTS MUST BE EMBEDDED A MINIMUM OF 1-FOOT DEEP AND SPACED NOT MORE THAN 8 FEET ON CENTER. WHERE WATER CONCENTRATES, THE MAXIMUM SPACING SHOULD BE 6 FEET.

2. LAY OUT FENCING DOWN-SLOPE OF DISTURBED AREA, FOLLOWING THE CONTOUR AS CLOSELY AS POSSIBLE. THE FENCE SHOULD BE SITED SO THAT THE MAXIMUM DRAINAGE AREA IS ¼ ACRE/100 FEET OF FENCE.

3. THE TOE OF THE SILT FENCE SHOULD BE TRENCHED IN WITH A SPADE OR MECHANICAL TRENCHER, SO THAT THE DOWN-SLOPE FACE OF THE TRENCH IS FLAT AND PERPENDICULAR TO THE LINE OF FLOW. WHERE FENCE CANNOT BE TRENCHED IN (E.G., PAVEMENT OR ROCK OUTCROP), WEIGHT FABRIC FLAP WITH 3 INCHES OF PEA GRAVEL ON UPHILL SIDE TO PREVENT FLOW FROM SEEPING UNDER FENCE.

4. THE TRENCH MUST BE A MINIMUM OF 6 INCHES DEEP AND 6 INCHES WIDE TO ALLOW FOR THE SILT FENCE FABRIC TO BE LAID IN THE GROUND AND BACKFILLED WITH COMPACTED MATERIAL.

5. SILT FENCE SHOULD BE SECURELY FASTENED TO EACH STEEL SUPPORT POST OR TO WOVEN WIRE, WHICH IS IN TURN ATTACHED TO THE STEEL FENCE POST. THERE SHOULD BE A 3-FOOT OVERLAP, SECURELY FASTENED WHERE ENDS OF FABRIC MEET.

6. SILT FENCE SHOULD BE REMOVED WHEN THE SITE IS COMPLETELY STABILIZED SO AS NOT TO BLOCK OR IMPEDE STORM FLOW OR DRAINAGE.

COMMON TROUBLE POINTS

1. FENCE NOT INSTALLED ALONG THE CONTOUR CAUSING WATER TO CONCENTRATE AND FLOW OVER THE FENCE.

2. FABRIC NOT SEATED SECURELY TO GROUND (RUNOFF PASSING UNDER FENCE).

3. FENCE NOT INSTALLED PERPENDICULAR TO FLOW LINE (RUNOFF ESCAPING AROUND SIDES).

4. FENCE TREATING TOO LARGE AN AREA, OR EXCESSIVE CHANNEL FLOW (RUNOFF OVERTOPS OR COLLAPSES FENCE).

INSPECTION AND MAINTENANCE GUIDELINES

1. INSPECT ALL FENCING WEEKLY, AND AFTER RAINFALL.

2. REMOVE SEDIMENT WHEN BUILDUP REACHES 6 INCHES.

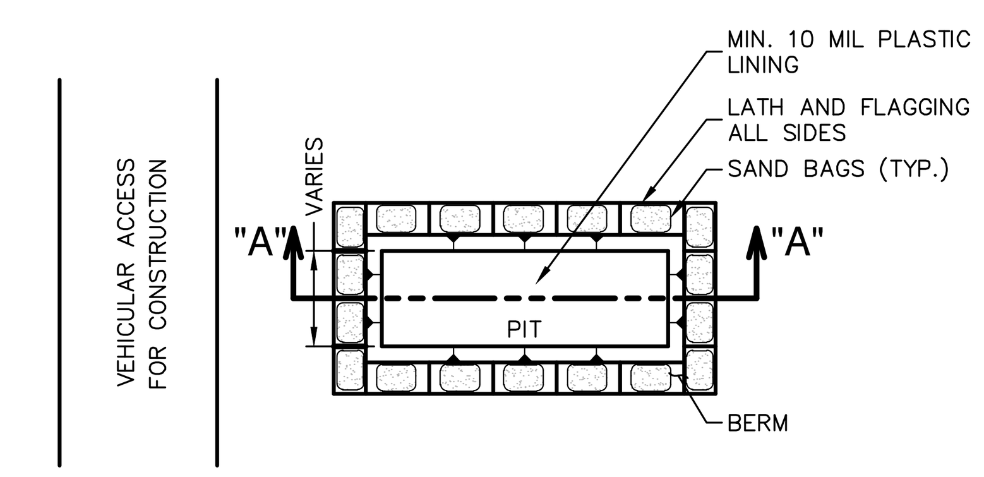
3. REPLACE TORN FABRIC OR INSTALL A SECOND LINE OF FENCING PARALLEL TO THE TORN SECTION.

4. REPLACE OR REPAIR SECTIONS CRUSHED OR COLLAPSED IN THE COURSE OF CONSTRUCTION ACTIVITY. IF A SECTION OF FENCE IS OBSTRUCTING VEHICULAR ACCESS, CONSIDER RELOCATING IT TO A SPOT WHERE IT WILL PROVIDE EQUAL PROTECTION, BUT WILL NOT OBSTRUCT VEHICLES. A TRIANGULAR FILTER DIKE MAY BE PREFERABLE TO A SILT FENCE AT COMMON VEHICLE ACCESS POINTS.

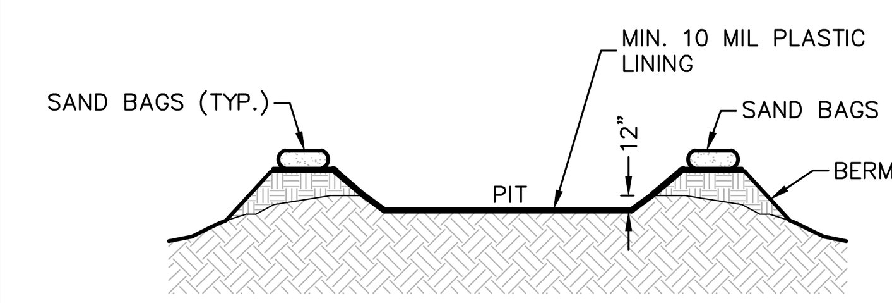
5. WHEN CONSTRUCTION IS COMPLETE, THE SEDIMENT SHOULD BE DISPOSED OF IN A MANNER THAT WILL NOT CAUSE ADDITIONAL SILTATION AND THE PRIOR LOCATION OF THE SILT FENCE SHOULD BE REVEGETATED. THE FENCE ITSELF SHOULD BE DISPOSED OF IN AN APPROVED LANDFILL.

SILT FENCE DETAIL

NOT-TO-SCALE



PLAN VIEW



SECTION "A-A"

GENERAL NOTES

1. DETAIL ABOVE ILLUSTRATES MINIMUM DIMENSIONS. PIT CAN BE INCREASED IN SIZE DEPENDING ON EXPECTED FREQUENCY OF USE.

2. WASHOUT PIT SHALL BE LOCATED IN AN AREA EASILY ACCESSIBLE TO CONSTRUCTION TRAFFIC.

3. WASHOUT PIT SHALL NOT BE LOCATED IN AREAS SUBJECT TO INUNDATION FROM STORM WATER RUNOFF.

4. LOCATE WASHOUT AREA AT LEAST 50 FEET FROM SENSITIVE FEATURES, STORM DRAINS, OPEN DITCHES OR WATER BODIES.

5. TEMPORARY CONCRETE WASHOUT FACILITY SHOULD BE CONSTRUCTED WITH SUFFICIENT QUANTITY AND VOLUME TO CONTAIN ALL LIQUID AND CONCRETE WASTE GENERATED BY WASHOUT OPERATIONS.

MATERIALS

PLASTIC LINING MATERIAL SHOULD BE A MINIMUM OF 10 MIL IN POLYETHYLENE SHEETING AND SHOULD BE FREE OF HOLES, TEARS, OR OTHER DEFECTS THAT COMPROMISE THE IMPERMEABILITY OF THE MATERIAL.

MAINTENANCE

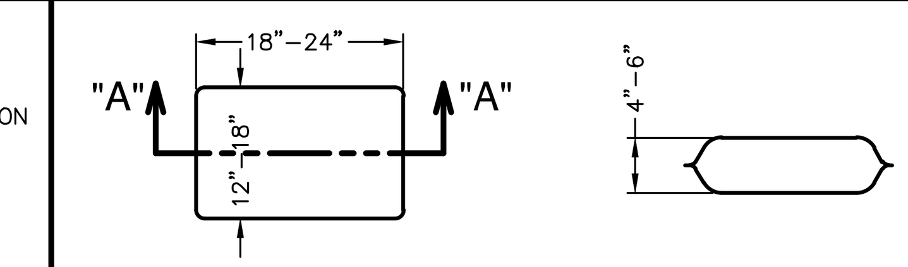
1. WHEN TEMPORARY CONCRETE WASHOUT FACILITIES ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE SHOULD BE REMOVED AND DISPOSED OF.

2. MATERIALS USED TO CONSTRUCT TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE REMOVED FROM THE SITE OF THE WORK AND DISPOSED OF.

3. HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCES CAUSED BY THE REMOVAL OF THE TEMPORARY CONCRETE WASHOUT FACILITIES SHOULD BE BACKFILLED AND REPAIRED.

CONCRETE TRUCK WASHOUT PIT DETAIL

NOT-TO-SCALE



PLAN VIEW

SECTION "A-A"

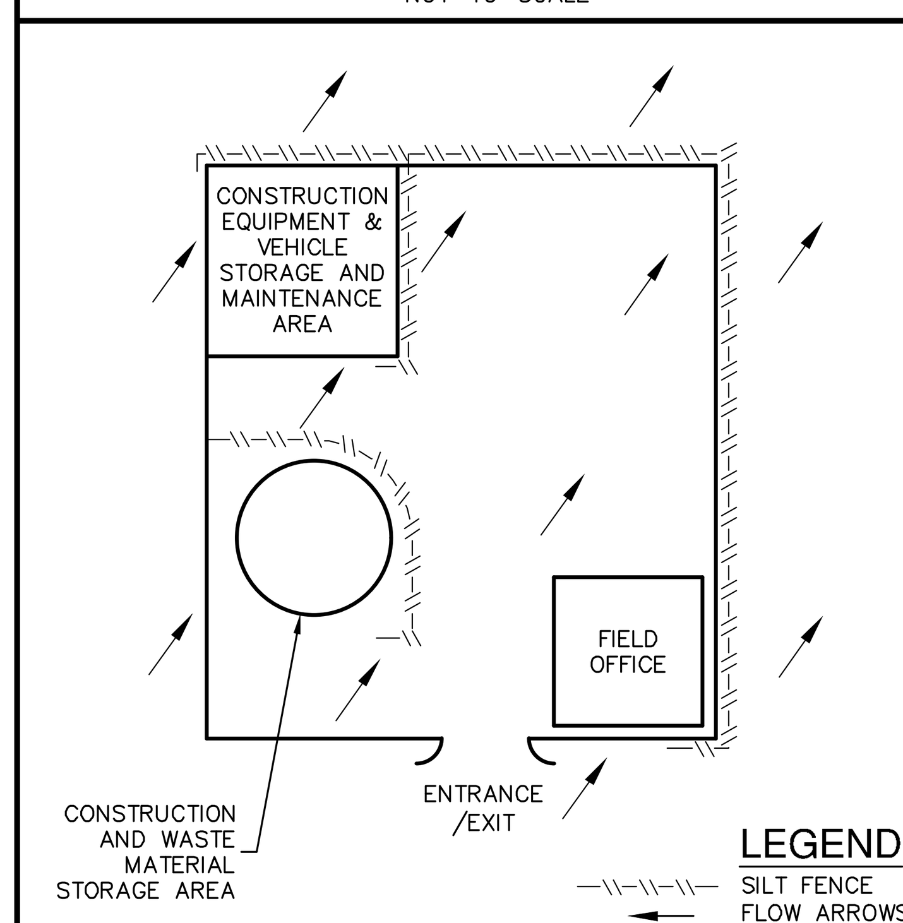
NOTES:
1. THE FILTER BAG MATERIAL SHALL BE MADE OF POLYPROPYLENE, POLYETHYLENE OR POLYAMIDE WOVEN FABRIC, MIN. UNIT WEIGHT OF 4 OUNCES/SY, HAVE A MULLEN BURST STRENGTH EXCEEDING 300 PSI AND ULTRAVIOLET STABILITY EXCEEDING 70%.

2. THE FILTER BAG SHALL BE FILLED WITH CLEAN, MEDIUM WASHED PEA GRAVEL TO COARSE GRAVEL (0.31 TO 0.75 INCH DIAMETER).

3. SAND SHALL NOT BE USED TO FILL THE FILTER BAGS.

GRAVEL FILTER BAG DETAIL

NOT-TO-SCALE



CONSTRUCTION STAGING AREA

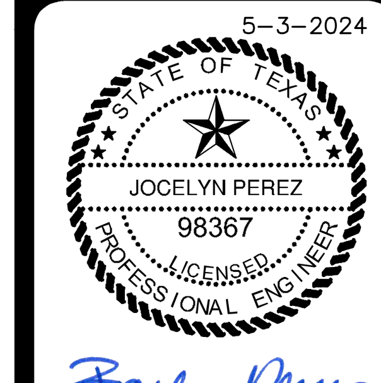
NOT-TO-SCALE

THE ENGINEERING SEAL HAS BEEN AFFIXED TO THIS SHEET ONLY FOR THE PURPOSE OF DEMONSTRATING COMPLIANCE WITH THE TPDES-STORM WATER POLLUTION PREVENTION PLAN (SWP3) REGULATIONS.

THIS SHEET HAS BEEN PREPARED FOR PURPOSES OF THE SWP3 ONLY. ALL OTHER CIVIL ENGINEERING RELATED INFORMATION SHOULD BE ACQUIRED FROM THE APPROPRIATE SHEET IN THE CIVIL IMPROVEMENT PLANS.

EXHIBIT 3

NO.	REVISION	DATE



PAPE-DAWSON ENGINEERS
1672 INDEPENDENCE DR, STE 102 I NEW BRAUNFELS, TX 78132 I 830.632.5633
TEXAS ENGINEERING FIRM #470 I TEXAS SURVEYING FIRM #10028800

VERAMENDI PRECINCT 11A
NEW BRAUNFELS, TEXAS
STORM WATER POLLUTION PREVENTION DETAILS

PLAT NO. ____
JOB NO. 30001-81
DATE MAY 2024
DESIGNER CP
CHECKED CK DRAWN CP
SHEET C8.01

Date: March 13, 2024, 1:38 PM - User ID: carcher
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