

SECTION 1.1 DRAFTING GUIDELINES

1.1.1 PURPOSE

The purpose of this section is to provide established standard criteria regarding the preparation of plans, sketches, maps, and exhibits in a uniform and consistent manner. This guideline is universal between hand drawn and electronically prepared plats and drawings.

Design consultants may have developed their own internal guidelines for preparing plans however, a level of uniformity in the design and file structure of the documents is crucial in the ability to: work with, integrate and file, documents created by different design consultants, along with those created in-house. These standards are not intended to limit the creativity of the design consultant or to reduce the quality of the design.

Although these guidelines are intended to cover all drafting situations in the preparation of drawings, it is recognized that this may not be so. The design consultant should use good professional judgment in applying and using industry standards so that drawings produced are clear and concise.

1.1.2 STANDARD TERMS AND DEFINITIONS

Wherever technical terms occur in these guidelines or in related documents, the intent and meaning shall be interpreted as described in Standard Terms and Definitions.

1.1.3 GENERAL

It is the responsibility of the user of these documents to make reference to and/or utilize industry standards not otherwise directly referenced within this document. The Engineer of work may not deviate from the criteria presented in this section without prior written approval of the District Engineer.

1.1.4 DRAWING ASSEMBLY GENERAL GUIDELINES

Drawings are intended to communicate the intent of the design to the contractor in a clear and concise manner as well as be technically complete and correct. The drawings must promote specific and clear interpretation. Drawings must be uncluttered, legible, easy to understand and have a high degree of uniformity.

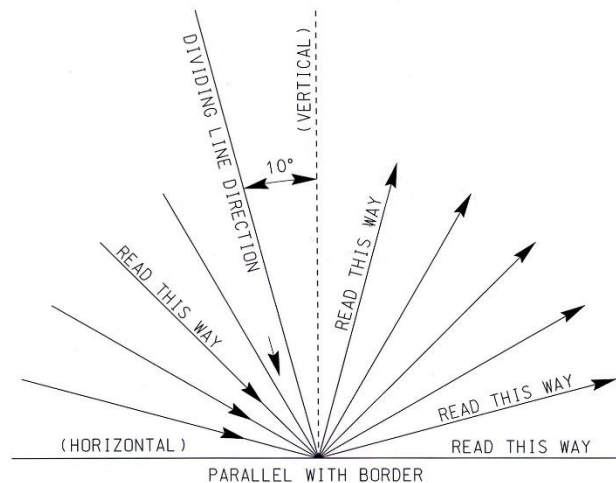
- A. Eliminate Repetitive Details: When several items have common details, show the common detail once.
- B. Eliminate Unnecessary Lines: Only those lines necessary to convey the design should be used. For example: Closely spaced parallel lines to depict curbs are superfluous, one line will suffice.
- C. Use of Abbreviations: Use abbreviations only when necessary to save space or to avoid excessive clutter. Abbreviations must be clear, easily understood and consistent throughout the plan set.

1. Standard abbreviations shall be per District Specification Section 01090.

- D. Use of Phrases or Words: In order to avoid confusion or misinterpretation, use phrases or words that specify, such as: By Others, Construct Pavement or Pavement to be Constructed.
- E. Do not use vague or ambiguous phrases or words that can be interpreted, such as: suitable, appropriate, in a workmanlike manner.
- F. Use of Symbols: Use symbols to reduce drafting time, increase legibility, and conserve space. Symbols must be consistent throughout the plan set.
1. Standard symbols shall be per Standard Drawing W-1 and shown in a legend on the plans.
- G. Line Work: Lines and lettering must be of adequate size and weight to produce legible half-size reproductions. Lines shall be sufficiently thick to print well and make readable photocopies. Line work must be smooth, firm, uniform weight and density throughout the drawings and ends should be clearly defined. Line widths should vary to distinguish certain features as follows:
1. Extra heavy lines should be used for drawing borders.
 2. Heavy lines should be used for emphasis of proposed features of the new facilities. Examples are proposed water mains, sewer mains and outline of objects.
 3. Medium weight lines should be used for right of way, match lines and single line drawings.
 4. Fine lines should be used for topography, outline of existing and future facilities and other less important details. Note: The final product shall represent the topographic lines as screened elements.
 5. Extra fine lines should be used for centerlines, phantom lines, dimension lines, and leader lines.
- H. Hatch and Patterns: Hatching and patterning shall be used to illustrate types of materials used and/or to delineate types of surfaces.
1. The use of hatching and patterns in CAD shall be in accordance with AutoCAD, Section 1.2.
 2. Do not render, hatch, shadow or draw all bricks or shingles. A small area of texture or hatching at corners or a simple detail showing pattern and direction tells everything necessary. Cross-hatching need not cover the entire area or wall.
 3. For an example of hatch patterns and correct usage see Exhibit A.
- I. Use of Tables and Notes: Tables and notes shall be used when necessary to achieve clarity. Examples include: utility line tables, curve data tables, coordinate tables, thrust and anchor block sizes, parts list, and notes that would otherwise create clutter at a specified point.
- J. Text Size and Alignment: Maintaining text sizes and alignments are important to maintain consistency throughout the drawings.

1. Text fonts for use in CAD shall be in accordance with AutoCAD, Section 1.2.
2. Text Size: All text shall be in upper case and without embellishments. The following sizes of text shall be predominant throughout the plan set.
 - a. Small text shall have a height of (0.10) and be used for all general notes, stationing and stationing elevations.
 - b. Medium text shall have a height of (0.15) and be used for detail headings, standard labels and match lines.
 - c. Large text shall have a height of (0.20) and be used for main titles and street names.
3. Text Alignment: All text will be read from either the bottom or right edge of the sheet. When necessary the rotation angle will be ten degrees (10°) past vertical. (See Figure 1 below)

Figure 1
Text Alignment



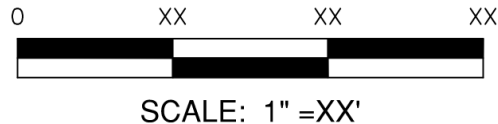
4. Text Placement: Text shall be placed in a clear open space of the drawing such that the text will not cross other drawing features, leader lines, or other text.
5. Decimals:
 - a. Use decimal of a foot measurements when dimensioning civil sheets. (i.e. 5.50', 12.53', 5.57')
 - b. Use feet and inches when dimensioning structural and architectural plan and sections, piping details and mechanical plans.
 - c. Fractions are to be stacked with diagonal setting. (i.e. $\frac{1}{2}$ ", $\frac{1}{4}$ ")

K. Leader Lines: Leader lines shall be used for associating text to an object such as notes, call outs, stationing, and details associated with the object.

1. Leader lines shall be as consistent as possible throughout each drawing of the plan set.

- a. Either arc'd or three (3) point leaders will be allowed.
 - b. Leader arrows shall be large enough to clearly show on the final product. Leader arrows shall be of adequate size to be legible at half-sized reproductions. Generally, leader arrows shall be the same as the font size. It is important to maintain consistency throughout the plan set.
 - c. Leaders shall always touch the object being called out.
 - d. If an object has a dimension, which is too long to be shown at scale, the leader should be broken and indicated to be a continuation line, by two arrowheads at the end of line.
 - e. Leader lines shall not:
 - i. Cross each other
 - ii. Cross other dimensions
 - iii. Be overtly long
 - iv. Be the same angle as hatch patterns
2. Refer to Exhibit B for examples of proper techniques for placement of leaders.
- L. Horizontal and Vertical Control: The basis for horizontal and vertical control shall be established before a survey is performed. All civil plans shall incorporate the NAD83 Coordinate system. The basis for horizontal control shall relate to the surrounding streets and the boundary or property line. Coordinates shall generally be indicated as follows:
- 1. On beginning and ending of pipelines, pipe deflections (BC and EC of alignment), manholes, vaults and other appurtenances as needed to fix their location. Coordinates shall be located on appurtenance's centerline or center point.
 - 2. Grading control points, top and/or bottom of slope with the rate of slope, and other control points to provide sufficient staking to control the contractor's grading tolerances.
- M. Drawing Scale: Drawing scales shall be used to maintain clarity when notes and dimensions are added to the drawing. Maintain legibility when drawings are reduced to half scale. Maintain readability when drawings are scanned or microfilmed for archival purposes.
- 1. Allowable drawing scales are as follows:
 - a. Civil Drawings: Civil drawings shall generally have a scale of 1 inch = 40 feet for pipe lines over 1000' and a scale of 1 inch = 20 feet for pipelines less than 1000', unless otherwise approved by the Agency Engineer. Other scales are acceptable only with prior approval.
- For maintaining legibility when drawings are reduced to half scale a graphic scale shall be used. (See Figure 2 below)

Figure 2
Graphic Scale



- b. Profile Views: Civil drawings shall generally have a vertical scale of 1 inch = 4 feet or 1 inch = 8 feet. A vertical scale of 1 inch = 8 feet shall be reserved for steep terrain only. Changing the scale to avoid break lines is not acceptable.
- c. Profile scales shall always reflect the same horizontal scale used in the plan view.
- d. Plan view and profile shall be aligned on the same sheet and include storm, water, sewer and recycled water with the profile above the plan view.
- e. Sections and Details: Sections and details should incorporate a scale. Use of other scales to improve clarity or fit into plan sheets will be allowed as directed by the District. Scales are available as follows:

1 inch = 10 feet
1 inch = 5 feet
1 inch = 4 feet
1 inch = 2 feet
1 inch = 1 foot

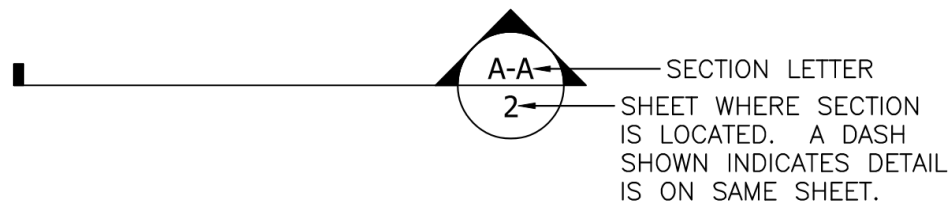
- f. Scale Annotation: All drawings, plats, sections, and details shall indicate a scale.
 - The notation "NTS" (not to scale) should be avoided when detail is critical. All drawings, sections and details should be drawn to true scale and depicted with a workable scale. "NTS" should be reserved for specific dimensions within the drawing that are not to scale. Exhibits, images and scanned drawings or other images used could also indicate "NTS".
 - When multiple views on a drawing are not to the same scale, the appropriate scale shall be centered under the title of the view. The scale shall be indicated below the section title.
 - When the entire drawing is to the same scale, the scale shall be indicated graphic scale.

N. Drawing Changes: The drawing status block on the border is intended for formal changes made by addendum during the bid phase and for recording changes made during construction. Changes made to drawings during design do not require revision notations on the border.

A change is noted by describing it in the revision block, circling (clouding) the revised area on the drawing, and placing the revision letter or number in a triangle inside the circled (clouded) area.

- O. Details and Sections: Details should be specific to the job only. Detail and section callouts shall be as shown in Exhibit C with the following clarifications:
1. Do not divide different details on a sheet using dividing lines or a grid pattern. (Do not “box in” details)
 2. Details shall be shown in numerical order (1, 2, 3...)
 3. Section cuts shall be shown in alphabetical order (A-A,B-B,C-C...)
 4. Detail callouts and section cuts shall indicate the sheet where the detail can be found. The detail shall indicate where, in the drawings, the detailed item originated. A dash shown in the area representing the sheet number indicates the detail as being shown on the same sheet.
 5. Arrange sections and details in sequential order, from left to right across the sheet.
 6. Use consecutive numbers and letters on each sheet of the plan set. Do not repeat a detail or section callout more than once on a plan set. (i.e. a plan set shall have only one Detail “1”)
 7. Section cuts should point to the top, left or right, but never to the bottom. Use arrowheads to indicate the direction of the cut.

Figure 3
Section Callout



1.1.5 PLAN ORGANIZATION AND ASSEMBLY

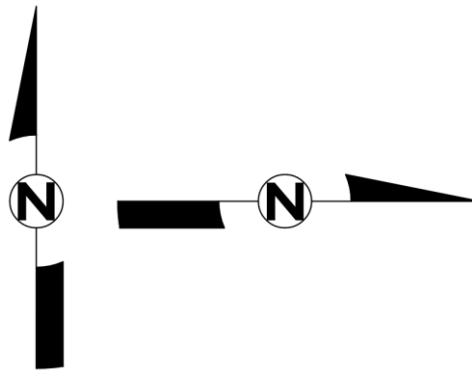
- A. Sheet Size: The border should measure 20” x 32” on a 22” x 34” sheet. Standard sheets, blocks and standard symbols will be provided electronically by contacting the District.
- B. Easement Plats: Easement plat shall be drawn to a scale on 8.5” x 11” sheet with the supplied District standard border.
- C. Sheet Designations: Plan sheets shall have a corresponding abbreviated designation to illustrate the type of drawing. The types of drawings listed in Table 1 are in the order that shall appear in a plan set.

Table 1
Sheet Designation and Drawing Order

Type of Drawing	Sheet Designations
Title	T
General	G
Demolition	D
Civil	C
Landscape/Irrigation	L
Architectural	A
Structural	S
Mechanical, Heating, Ventilation and Air Conditioning	M
Plumbing	P
Cathodic Protection	CP
Electrical	E
Instrumentation & Controls	I
Traffic Control	TC
Environmental	EN

- D. Drawing Orientation: All plan views must contain a North Arrow as illustrated in Figure 4 below.

Figure 4
North Arrow



1. Plans shall generally be oriented north, with the North Arrow pointing upward or to the right of the sheet. The North Arrow will govern the orientation of sheet layout in plan view.
2. The North Arrow shall be placed above the graphic scale.
3. The orientation of building plans shall be identical.
4. The orientation of site plans shall be identical.

E. Stationing:

1. For new private streets or new utility lines, stationing shall generally start with Station 10+00 and go from left to the right, for plan and profile, across the sheet. Stationing along existing private and public roads shall follow Road Survey and/or County of San Diego and/or City of Escondido public street improvement As-Built stationing.
2. Station along horizontal alignment with one hundred foot (100') stations including angle points, appurtenances, inlets and outlets.

3. When installation consists of more than one utility (potable water, recycled water or sewer) or is associated with street improvements, road centerline stationing shall be used for all improvements. A distance left or right from road centerline shall be used.
4. When installation consists of one utility (potable water, recycled water or sewer) only, stationing shall be centered on the utility.
5. All potable water, recycled water and sewer pipe appurtenances shall be stationed.
6. All curb returns shall be stationed at BCR and ECR.
7. Station equations shall be provided at street intersections.

F. Match Line and Sheet Call outs:

1. Match Lines shall be used to indicate a break in the alignment that continues on another sheet.
2. Sheet Call Outs shall be used to indicate a reference to another sheet or a continuation of alignment on another sheet. (MATCHLINE STA XXX, SEE SHEET 3)

- G. Title Sheet: Title Sheets shall be as shown in Exhibit D-1 (When processed with County of San Diego Improvement Plans) or D-2 (For VCMWD processing only). (These exhibits are intended to provide an example of a cover sheet, please select accordingly).

The title sheet shall include, but not limited to the following information:

1. Project Name and Description
2. Vicinity Map showing:
 - a. Project Site(s)
 - b. Major Streets
 - c. North Arrow
3. Key Map(s)
 - a. Large enough (minimum 100 foot scale) to clearly show all required information.
 - b. Show existing potable, recycled and/or sewer mains with drawing numbers and proposed pipelines.
 - c. Legend
 - d. Drawing scale
 - e. North arrow
 - f. Project Sheet layout
 - g. Street Names

- h. Thomas Brothers Map page number and grid number
- 4. Sheet Index with sheet reference and sheet description
- 5. Topography Source
- 6. Basis of Bearings
- 7. Benchmark References
- 8. Assessor's Parcel Number
- 9. Legal Description
- 10. Site Address
- 11. Dig Alert Symbol and current 1-800-phone number
- 12. Standard Abbreviations

Additional information may be required specific to developer projects, beyond what is shown above, as called for in Section 2.2.

- H. General Sheet: General Sheets may not be needed depending on the size and/or type of project. Information shall be shown on the cover sheet if the general sheet is not required by the District Engineer.

The general sheet, if required, shall include but not limited to the following information:

- 1. VCMWD General Notes
 - 2. VCMWD Water and Sewer Notes
 - 3. Safety Requirements Notes
 - 4. Legend (project related only)
 - 5. Street Sections showing locations of utilities from centerline. Label Streets as Private or Public.
- I. Plan and Profile Sheet(s): Plan and profile sheets shall be as shown in Exhibit E-1 (When processed with County of San Diego Improvement Plans) or E-2 (For VCMWD processing only). (These exhibits are intended to provide an example of a plan and profile sheet, please select accordingly.)
 - 1. Profile view shall include but is not limited to the following:
 - a. Existing ground line
 - b. Street centerline station equation at street intersections with finish surface elevation
 - c. New/proposed ground line
 - d. Top of pipe elevations for potable and recycled water mains
 - e. Flow line or invert elevations of pipe for sewer mains

- f. Utility crossings, indicate size, type and elevation of existing and proposed utilities identified. Label crossing locations on profile. Sand cushion shall be specified at storm drain crossings providing less than 1' clearance.
- g. Vertical/horizontal angle points and vertical curve data. At vertical/horizontal bends, show station and top of pipe elevations. Restraint joint limits shall be provided from the vertical angle in each direction.
- h. Water pipeline crossings over sewer mains must have 1' of vertical clearance between bottom of water and top of sewer main. When there is no alternative except for sewer to go over water, special conditions will be required per California Department of Health Services.
- i. Vertical curve data to include BVC/EVC stationing and elevation, curve length, high point or low point, entry and exit grade and callouts at L/4.
- j. Sewer main on profiles shall include length, pipe type and slope percentage. Sewer slope percentage shall be calculated using the true length of the sewer line, not street centerline length. Information shown on plans (MH number, invert and rim elevation) shall match Sewer Study.
- k. Type, size and stationing of pipe appurtenances
- l. Size, class, type and pressure zone of proposed pipe
- m. Match lines and other sheet references
- n. Horizontal and vertical scale
- o. Depth from new/proposed ground line to top of pipe
- p. Storm Drain to be profiled, pipe size and type labeled. Line weight shall be distinguishable from water and sewer main.
- q. Design water main to go over storm drain crossings when feasible. A minimum of 2' of cover and 6" sand cushion between pipes is required. If not feasible, vertical angles with restraint joints are required for the waterline.

Additional information may be required for specific to developer projects, beyond what is shown above, as called for in Section 2.2.

2. Plan view shall include but is not limited to the following information:

- a. Appurtenances such as air valves, blow off valves, water and sewer laterals, manholes, valves, test station, angle points, inlets, and any other items for the purpose of providing valuable information. Show type, size and stationing of appurtenances.
- b. Concrete encasements, where needed

- c. Casings and casing data, where needed
- d. Size, class, and type of proposed pipe
- e. Match lines and other sheet references
- f. Show existing utilities with screened line weights. Indicate size and type of utilities identified.
- g. Show streets/easements with dimensions including distances to and between utilities. Minimum 10' horizontal clearance required between water and sewer mains and service laterals (edge to edge).
- h. Street Names, differentiate between private and public
- i. Drawing scale
- j. North arrow
- k. Bearing and Distances
- l. Angle points, curve data, BC's, EC's
- m. Thrust blocks and size in square feet of bearing area
- n. Street centerline station equations at intersections
- o. Station and label property lines, sewer and water service laterals
- p. Utility crossings labels and calculations with station and offset at crossing location
- q. AC pavement shading shall not be shown on utility plan improvement sheets

Additional information may be required specific to developer projects, beyond what is shown above, as called for in Section 2.2.

- J. Detail Sheet(s): Detail sheets shall be as shown in Exhibit F. (This exhibit is intended to provide an example of a detail sheet)
 - 1. The detail sheet shall include details and sections specific to the job only.
 - 2. Provide only the kinds of information, which relate clearly to the job details. Designate items by generic names, not trade names.
 - 3. If standard drawings are to be used, simply refer to them and their location rather than copying them onto a detail sheet. (Example: 6" Fire Hydrant Assembly, see Standard Drawing W-12)
 - 4. Avoid repeating street names, numbers or material identification on the same sheet.
 - 5. Do not repeat dimensions except as necessary to relate one drawing or view clearly to another and only if there is no other way to identify location or orientation.

6. Information included with a detail, such as materials, should not be repeated in the callout. Use material tables where possible to avoid repeated callouts and to provide clarity to the detail.
- K. Seals/Signatures: All sheets of the plan set, when issued for bidding, will require the stamp of a California registered professional engineer, his or her signature, and the date below the seal. Revisions to the plans that have been stamped by a registered professional engineer must be initialed and dated below the stamp or in the revision block column designated for the initials by the same engineer who signed the original work. If this cannot be done, another registered professional engineer can affix his seal to the plans (or enter his registration number), and enter his signature and the date, noting that his seal covers only the specific revisions. Only permanent stamps are acceptable, "Sticky Back" attachments are not. Note: The cover of the job specifications shall also have the stamp of the engineer of work.

1.1.6 DELIVERABLES

District supplied preprinted mylars (for use with hand drawn plans) and or electronic blocks, standard drawings and symbols will be supplied by contacting the Agency. A fee may be charged for Agency supplied materials.

Record Drawings: Record Drawings shall be prepared and supplied to the District as Described in Section 1.7.

When plans are prepared on District title block, the District is to receive the original mylars.

Electronic Drawings: Electronic Submittals and media to be used shall be in accordance with Section 1.2.

1.1.7 REFERENCE

1. Valley Center Municipal Water District Standards:

A. Design Guidelines

- i. Section 1.2, AutoCAD Guidelines
- ii. Section 1.7, Record Drawing Guidelines
- iii. Section 2.2, Development Plan and Permit Processing Procedures
- iv. Exhibits 1.1, A through F

B. Standard Drawings

- i. W-1, Standard Symbols for Water Construction Drawings
- ii. S-1, Standard Symbols for Sewer Construction Drawings

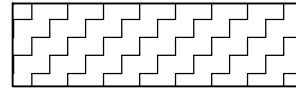
C. Technical Specifications

- i. Section 01090, Abbreviations

END OF SECTION

PAVEMENT REMOVAL

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LAYER=C-PATT-PAVE-DEMO
COLOR=1



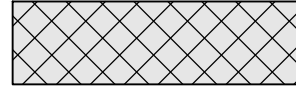
AC PAVEMENT

PATTERN=SOLID
LAYER=C-PATT-CONC-AC
COLOR=31



PLANE & OVERLAY

PATTERN=SOLID AND NET
LAYER=C-PATT-PLNE-OLAY
COLOR=SOLID=31, NET =1



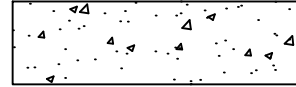
PCC (PLAN VIEW)

PATTERN=AR-SAND
LAYER=C-PATT-CONC-PC
COLOR=2



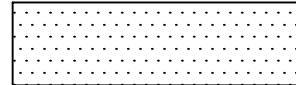
PCC (SECTION VIEW)

PATTERN=AR-CONC
LAYER=C-PATT-CONC-SC
COLOR=1



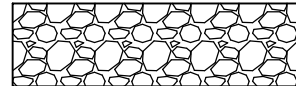
DECOMPOSED GRANITE/TRAIL

PATTERN=DOTS
LAYER=C-PATT-PATH
COLOR=2



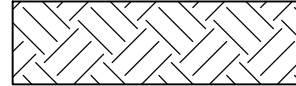
GRAVEL/RIP RAP

PATTERN=GRAVEL
LAYER=C-PATT-BASE-AG
COLOR=1



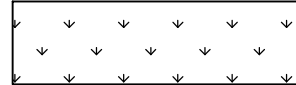
EXISTING GROUND

PATTERN=EARTH
LAYER=C-PATT-SOIL
COLOR=1



HYDROSEED/EROSION CONTROL

PATTERN=GRASS
LAYER=C-PATT-HYDR
COLOR=1



DEMOLITION /CONSTRUCTION ZONE

PATTERN=ANSI31
LAYER=C-PATT-CONS-DEMO
COLOR=1



NOTES:

1. REFER TO SECTION 1.1 OF THE DESIGN GUIDE
2. HATCHING AND PATTERNS SHALL BE USED TO ILLUSTRATE TYPES OF MATERIALS AND/OR DELINEATE TYPES OF SURFACES
3. A SMALL AREA OF TEXTURE OR HATCHING AT CORNERS OF THE DETAIL SHOWING PATTERN AND DIRECTION IS ALL THAT'S NEEDED

APPROVED:

DISTRICT ENGINEER _____ DATE _____

LATEST REVISION _____ DATE _____

DESIGN GUIDE EXHIBIT 'A'

STANDARD HATCHING AND PATTERNING FOR CONSTRUCTION DRAWINGS

VALLEY CENTER
MUNICIPAL
WATER DISTRICT
29300 VALLEY CENTER ROAD
VALLEY CENTER, CA 92082

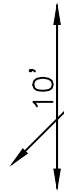


STANDARD LEADER LINE RULES AND SAMPLES

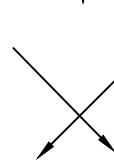
DRAW LEADERS WITH SAME ANGLES AND ALIGN ANGLES VERTICALLY WHEN POSSIBLE SEE NOTE 3

LEADER ARROWS SHALL BE CONSISTENT THROUGHOUT EACH DRAWING OF THE PLAN SET, SEE NOTE 4

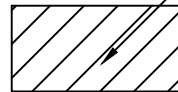
DRAW LEADERS WITH SAME ANGLES AND ALIGN ANGLES VERTICALLY WHEN POSSIBLE SEE NOTE 3



LEADERS SHALL NOT CROSS DIMENSIONS



LEADERS SHALL NOT CROSS OTHER LEADERS

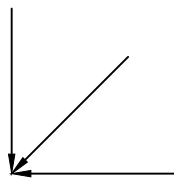


LEADERS SHALL NOT BE DRAWN AT THE SAME ANGLE AS THE PATTERN

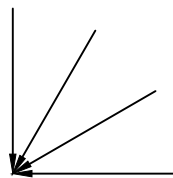
TYPICAL LEADERS INDICATING A DIMENSION OR NOTE THAT IS NOT TO SCALE

TYPICAL LEADERS INDICATING A DIMENSION OR NOTE THAT IS CONTINUOUS BEYOND THE CURRENT VIEW

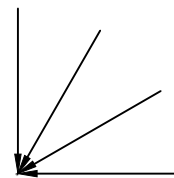
TYPICAL LEADER LINE ANGLE SETTINGS



45° ANGLE



30° ANGLE



15° ANGLE

NOTES:

1. REFER TO SECTION 1.1 OF THE DESIGN GUIDE
2. LEADER LINES SHALL BE USED FOR ASSOCIATING TEXT TO AN OBJECT
3. LEADER LINES SHALL BE AS CONSISTENT AS POSSIBLE THROUGHOUT THE ENTIRE DRAWING
4. LEADER ARROWS SHALL BE THE SAME AS FONT SIZE WITH CONSISTENCY THROUGHOUT THE PLAN SET

APPROVED:

DESIGN GUIDE EXHIBIT 'B'

DISTRICT ENGINEER DATE

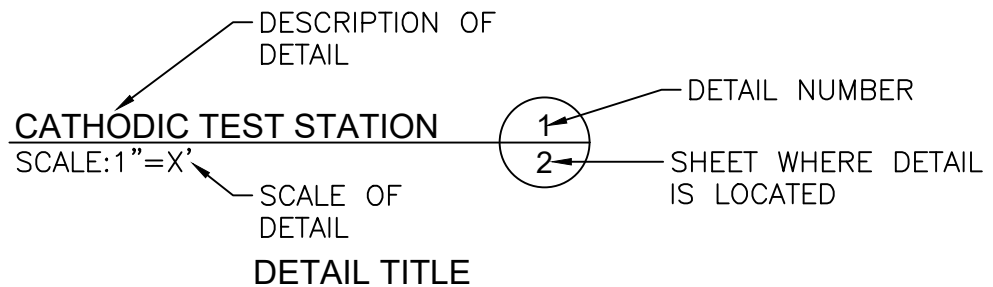
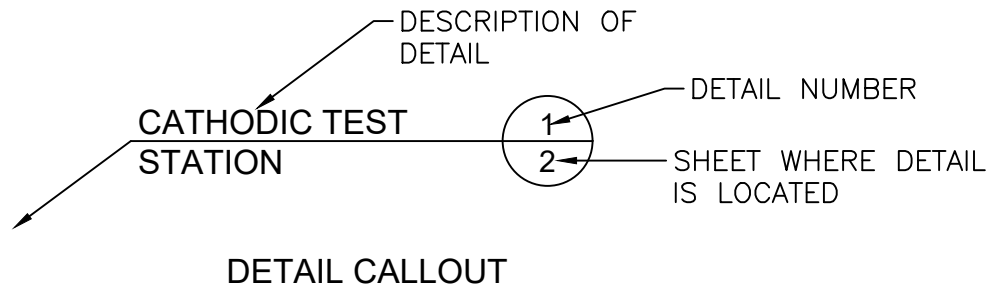
LATEST REVISION DATE

STANDARD LEADER LINES FOR
CONSTRUCTION DRAWINGS

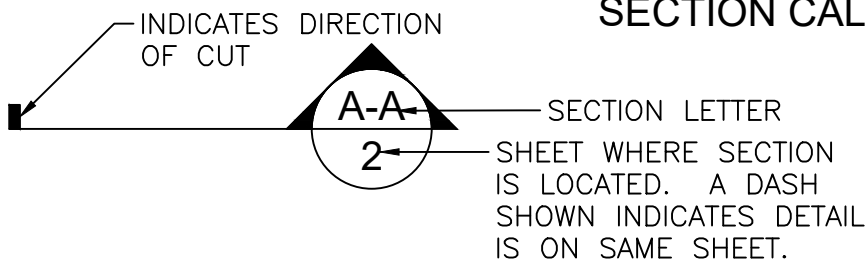
VALLEY CENTER
MUNICIPAL
WATER DISTRICT
29300 VALLEY CENTER ROAD
VALLEY CENTER, CA 92082



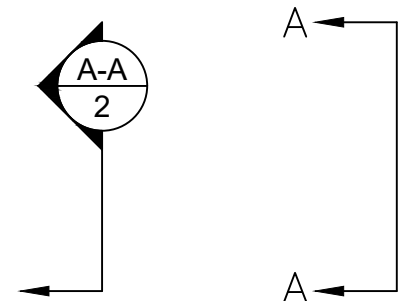
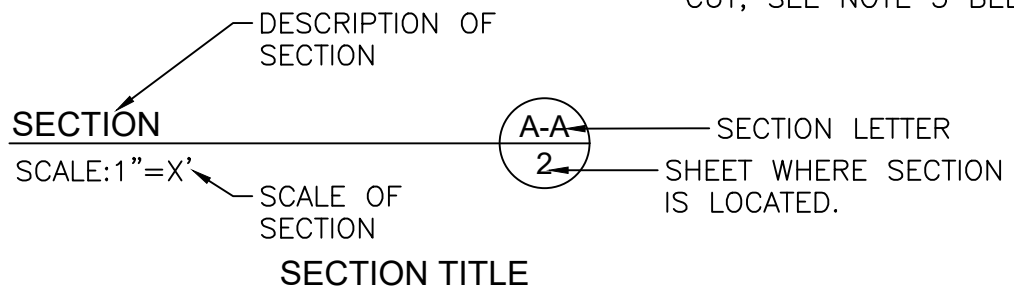
STANDARD DETAIL CALLOUTS



SECTION CALLOUT



SECTION CALLOUT



OTHER ACCEPTABLE WAYS TO INDICATE A SECTION CUT, SEE NOTE 3 BELOW

- NOTES:
1. REFER TO SECTION 1.1 OF THE DESIGN GUIDE
 2. REFER TO SECTION 1.1, EXHIBIT C FOR STANDARD LEADER LINES
 3. SECTION CUTS SHALL BE SHOWN CONSISTENTLY THROUGHOUT THE PLAN SET
 4. A DASH SHOWN ON THE AREA REPRESENTING THE SHEET NUMBER INDICATES THE DETAIL AS BEING SHOWN ON THE SAME SHEET

APPROVED:

DESIGN GUIDE EXHIBIT 'C'

STANDARD DETAIL & SECTION
CALLOUTS FOR
CONSTRUCTION DRAWINGS

VALLEY CENTER
MUNICIPAL
WATER DISTRICT
29300 VALLEY CENTER ROAD
VALLEY CENTER, CA 92082



DISTRICT ENGINEER _____ DATE _____

LATEST REVISION _____ DATE _____

V.C.M.W.D. GENERAL NOTES

UNLESS OTHERWISE INDICATED HEREIN, ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE BELOW; PRECEDENCE SHALL FOLLOW ORDER LISTED:

- A. THESE PROJECT PLANS AND SPECIFICATION
- B. VCMWD STANDARD WATER AND SEWER DRAWINGS, LATEST APPROVED EDITION
- C. VCMWD SEWER FACILITY DESIGN MANUAL, FEBRUARY 2000 AND STANDARD SPECIFICATIONS FOR THE CONSTRUCTION OF PIPELINES AND APPURTENANCES, LATEST EDITION.
- D. STANDARD SPECIFICATION FOR PUBLIC WORKS, "GREENBOOK" LATEST EDITION

1. A PRE-JOB CONFERENCE SHALL BE HELD BEFORE THE START OF CONSTRUCTION. CONTRACTOR ATTENDANCE IS MANDATORY.
2. CONTRACTOR SHALL NOTIFY THE VCMWD ENGINEERING DEPARTMENT IN WRITING ONE WEEK PRIOR TO THE START OF CONSTRUCTION AND VERBALLY 24 HOURS IN ADVANCE OF BEGINNING WORK TO ARRANGE FOR INSPECTION OF THE PROJECT.
3. CONTRACTOR MUST CALL "DIG ALERT" OF SOUTHERN CALIFORNIA TO HAVE UNDERGROUND SERVICE UTILITIES LOCATED PRIOR TO CONSTRUCTION
4. WORK DONE WITHOUT DISTRICT INSPECTION SHALL BE SUBJECT TO REMOVAL.
5. THE TELEPHONE NUMBER OF THE VALLEY CENTER MUNICIPAL WATER DISTRICT IS (760) 735-4500.
6. APPROVAL OF PLANS BY THE VALLEY CENTER MUNICIPAL WATER DISTRICT DOES NOT CONSTITUTE RESPONSIBILITY FOR ACCURACY OF INFORMATION NOR LOCATIONS OF OTHER EXISTING UTILITIES.
7. CONTRACTOR IS REQUIRED TO SUBMIT ALL MATERIALS FOR APPROVAL PRIOR TO INSTALLATION, ANY MATERIALS INSTALLED WITHOUT APPROVAL SHALL BE SUBJECT TO REMOVE.
8. CONTRACTOR IS REQUIRED TO EMPLOY CERTIFIED THIRD PARTY TESTING FOR COMPACTION AND PROVIDE REPORTS ON A TIMELY BASIS.
9. CONTRACTOR SHALL POTHOLE ALL FACILITIES AFFECTED BY CONSTRUCTION OF THIS PROJECT TO VERIFY DEPTHS, GRADES, SIZES, LOCATIONS, ETC., MINIMUM 10 DAYS PRIOR TO THE START OF TRENCHING OPERATIONS. ANY DISCREPANCIES FOUND IN THE FIELD WITH THE INFORMATION PROVIDED ON THESE DRAWINGS MUST BE BROUGHT TO THE ATTENTION OF THE DISTRICT ENGINEER PRIOR TO PROCEEDING WITH CONSTRUCTION.
10. ANY CHANGES TO THE DESIGN OR THESE DRAWINGS SHALL BE APPROVED BY THE DISTRICT ENGINEER, IN WRITING, PRIOR TO PROCEEDING WITH CONSTRUCTION.
11. ALL MATERIALS SHALL BE INSTALLED PER MANUFACTURER'S RECOMMENDATION, UNLESS DIRECTED OTHERWISE
12. ANY "BREAK-INS" OR MODIFICATIONS TO EXISTING INSTALLATIONS SHALL BE MADE IN THE PRESENCE OF THE DISTRICT ENGINEER OR HIS REPRESENTATIVE.
13. CONTRACTOR WILL BE RESPONSIBLE FOR MAINTAINING ALL EXISTING VCMWD ABOVE AND BELOW GROUND FACILITIES AFFECTED BY CONSTRUCTION OF THIS PROJECT.
14. CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR CONSTRUCTION OF THE WORK, INCLUDING A PERMIT FROM THE COUNTY DEPARTMENT OF PUBLIC WORKS FOR ANY EXCAVATION WITHIN EXISTING COUNTY RIGHTS-OF-WAY.
15. CONTRACTOR IS TO OBSERVE ALL SAFETY AND TRAFFIC CONTROL REGULATIONS AS REQUIRED BY CAL/OSHA, COUNTY OF SAN DIEGO AND THE AMERICAN PUBLIC WORKS ASSOCIATION.
16. PRIOR TO INSTALLING ANY DISTRICT PIPELINE IN A FILL AREA, A SOILS REPORT SHALL BE SUBMITTED TO THE DISTRICT ENGINEER CERTIFYING THAT ALL EARTH FILLS WERE COMPACTED TO A MINIMUM 90% RELATIVE DENSITY TOP TO BOTTOM.
17. THE FINAL LOCATION AND ELEVATION OF SEWER AND WATER LATERALS SHALL BE SHOWN ON ORIGINAL PLANS PRIOR TO ACCEPTANCE OF WORK.
18. CONTRACTOR SHALL MAINTAIN AN UP TO DATE SET OF AS-BUILTS ONSITE.
19. CONTRACTOR SHALL POSSESS CURRENT HARD COPIES OF PROJECT PLANS AND ALL REFERENCED SPECIFICATIONS ONSITE.
20. THE CONTRACTOR SHALL FOLLOW INSURANCE, BONDING, AND WARRANTY REQUIREMENTS AS SPECIFIED IN THE DISTRICT FACILITIES AGREEMENT.

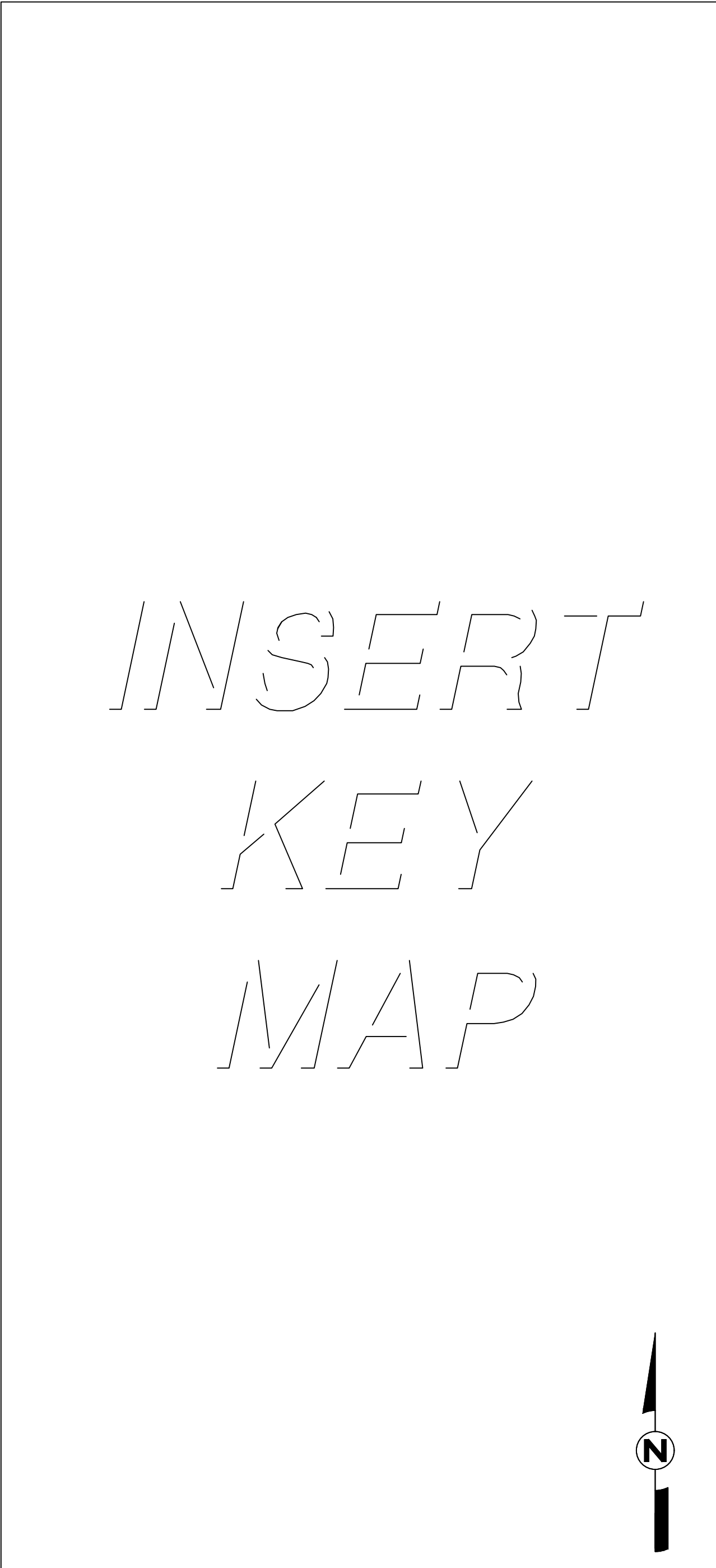
WATER NOTES

1. CONNECTIONS TO EXISTING DISTRICT FACILITIES WILL BE MADE IN ACCORDANCE WITH VCMWD'S STANDARD SPECIFICATIONS, SECTION 1-30 SHUTDOWN PERIODS, AND SPECIFICATION 15000, WHICH DETAIL THE NOTICE PERIODS, REQUIRED CONDITIONS, AND RESPONSIBILITIES OF THE CONTRACTOR.
2. UNLESS SHOWN DEEPER, ALL PIPELINES 14" AND SMALLER SHALL BE INSTALLED WITH A MINIMUM COVER OF 36" FOR PAVED ROADWAYS OR 42" FOR UNPAVED ROADWAYS AND EASEMENTS. PIPELINES 16" AND LARGER SHALL BE INSTALLED WITH A MINIMUM COVER OF 48" FOR PAVED ROADWAYS OR 54" FOR UNPAVED ROADWAYS AND EASEMENTS.
3. ALL MAINLINE AND HYDRANT VALVES SHALL BE FLANGED.
4. CONTRACTOR MAY BE REQUIRED TO INSTALL 2" SERVICE SADDLE WITH 2" CORPORATION STOP TO TOP OF 8" WATER MAIN TO SERVE AS MANUAL AIR RELEASE DURING PIPELINE TESTING. UPON COMPLETION OF ALL PIPELINE TESTING, CONTRACTOR WILL REMOVE 2" CORP. STOP AND INSTALL 2" THREADED BRASS PLUG INTO SERVICE SADDLE.
5. WATER SERVICE LATERALS SHALL NOT BE INSTALLED WITHIN DRIVEWAY OR SIDEWALK AREAS.
6. CONTRACTOR SHALL, AT NO COST TO THE DISTRICT, EXTEND OR RELOCATE EXISTING WATER MAIN APPURTENANCES; RELOCATE EXISTING WATER SERVICE LATERALS AND METERS; RECONNECT, EXTEND/SHORTEN ALL CUSTOMER'S PRIVATE LINES AFFECTED BY THE ROAD IMPROVEMENTS INCLUDED IN THESE PLANS, WHEN NECESSARY, AT DEVELOPERS COST. THE DEVELOPER WILL BE RESPONSIBLE FOR THE COST TO UPGRADE ALL RELOCATED WATER METERS TO CURRENT BACKFLOW STANDARDS.
7. PRESSURE TESTING SHALL BE COMPLETED PER SPECIFICATION 15044 OF THE STANDARD SPECIFICATIONS, WITH EXCEPTION TO THE LEAKAGE AMOUNT, NO MEASURABLE LEAKAGE ALLOWED, THAT IS NOT DUE TO GAUGE TOLERANCE AND AMBIENT TEMPERATURE CHANGES DURING TESTING.
8. ALL NEW WATERLINES SHALL BE DISINFECTED PER AWWA C651-14. BACTERIA SAMPLING SHALL BE DONE USING METHOD A PROCEDURE.
9. DISINFECTION AND PRESSURE TESTING OF NEW WATERLINES SHALL BE COMPLETED AND ACCEPTED BY DISTRICT PRIOR TO MAKING CONNECTION TO EXISTING SYSTEMS. AN AIR GAP OR TEST PLATE SHALL BE USED, PRESSURIZING/DISINFECTING AGAINST A CLOSED VALVE IS NOT ALLOWED.
10. PIPE DEFLECTION SHALL NOT EXCEED 80% OF MANUFACTURER ALLOWABLE TOLERANCE, ADDITIONAL DEFLECTION SHALL BE ACCOMPLISHED WITH APPROPRIATE FITTINGS, SUBMITTED AND APPROVED BY DISTRICT PRIOR.
11. ALL ABOVE GROUND APPURTENANCES (FH, AV, BO, ETC.) AND PRV VALVES AND FITTINGS, WHICH ARE BEING ABANDONED AS A PART OF THIS PROJECT, SHALL BE REMOVED TO MINIMUM 12" BELOW GRADE AND DELIVERED TO THE VCMWD YARD OR AS DIRECTED BY INSPECTOR.
12. MATERIALS SHALL BE ADEQUATELY RATED FOR SPECIFIED TEST PRESSURE AT 135% OF DESIGN PRESSURE.

SEWER NOTES

1. TRENCH WIDTH SHALL BE PER VCMWD S-8, FOR PIPE UP TO 15 INCHES, UNLESS OTHERWISE NOTED. FOR PIPE 15 INCHES AND OVER, TRENCH WIDTH SHALL BE PER GREENBOOK SPECIFICATION 15000, SECTION 1-12.1. WHENEVER THE EXCAVATED MATERIAL IS NOT SUITABLE FOR BACKFILL, THE CONTRACTOR SHALL REMOVE THIS MATERIAL AND ARRANGE FOR AND FURNISH SUITABLE IMPORTED BACKFILL MATERIAL WHICH IS CAPABLE OF ATTAINING THE REQUIRED LATERAL DENSITY. IMPORTED BACKFILL MATERIAL OR OTHER BACKFILL MATERIAL SHALL BE APPROVED BY THE ENGINEER, AND PER SECTION 306-1.3.5 OF THE "GREENBOOK" STANDARD SPECIFICATIONS.
2. CONTRACTOR SHALL INSTALL TRAPS AND PLUGS IN UPSTREAM MANHOLES TO PREVENT CONSTRUCTION DEBRIS FROM ENTERING AS DIRECTED BY DISTRICT INSPECTOR.
3. AFTER COMPLETION OF PIPE LAYING, ALL MAIN LINE SEWERS, SERVICE LATERALS AND STRUCTURES SHALL BE AIR AND MANDREL TESTED PER SSPWC SECTION 306-7.8 IN THE PRESENCE OF THE INSPECTOR.
4. FINAL ACCEPTANCE OF SEWER LINES WILL BE SUBJECT TO INTERNAL CLOSED CIRCUIT TELEVISION (CCTV) INSPECTION. CCTV SHALL HAVE BEEN DONE NO MORE THAN 6 MONTHS PRIOR TO ACCEPTANCE, IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO PAY FOR THE COST OF THIS WORK AND ANY ADDITIONAL CCTV THAT IS REQUIRED TO VERIFY RE-WORK OR CORRECTIONS.
- 4.1. VIDEO INSPECTION SHALL SHOW WITH HIGH RESOLUTION OPERATIONAL AND STRUCTURAL DEFECTS E.G., INFLOWS, SAGS, OFFSET JOINTS, CRACKS, ROUGHNESS, "FINS" OR FOLDS IN THE PIPELINES, COMPLETE WITH AUDIO COMMENTARY AND INSPECTION LOG.
- 4.2. THE DISTRICT INSPECTOR SHALL BE NOTIFIED A MINIMUM OF 2 WORKING DAYS IN ADVANCE OF VIDEO INSPECTING.
- 4.3. VIDEO INSPECTION SHALL BE PERFORMED ONE PIPE REACH (E.G., MANHOLE TO MANHOLE) AT A TIME.
- 4.4. THE CONTRACTOR SHALL VIDEO INSPECT THE PIPELINE WITH MAXIMUM FLOW DIVERTED (IF REQUIRED) FROM THE PIPELINE, THE PIPE REACH BEING INSPECTED SHALL BE ISOLATED FROM THE REMAINDER OF THE PIPELINES WITH THE UPSTREAM SEWAGE FLOW BYPASSED (IF REQUIRED). IN THE EVENT THAT THE EXISTING FLOW IS INTERFERING WITH THE VIDEO OPERATION, A BYPASS SHALL BE PERFORMED BY THE CONTRACTOR TO LOWER THE FLOW VOLUME SUFFICIENTLY TO ALLOW FOR A CLEAR VIDEO PICTURE. SUFFICIENT WATER SHALL BE SUPPLIED TO THE ISOLATED SECTION TO CAUSE DRAINAGE REACHING THE DOWNSTREAM MANHOLE PRIOR TO VIDEO INSPECTING. IF EXISTING FLOWS ARE HIGH, PRE-CONSTRUCTION VIDEO INSPECTION CAN BE DONE WITH PARTIAL FLOW. DEPTH OF THE FLOW SHALL NOT EXCEED:
- 4.5. PIPES 6" - 10" - 20% OF THE PIPE DIAMETER.
- 4.6. PIPES 12" - 24" - 25% OF THE PIPE DIAMETER.
- 4.7. PIPES 27" AND UP - 30% OF THE PIPE DIAMETER.
- 4.8. THE CAMERA SHALL BE MOVED THROUGH THE PIPELINE IN A DOWNSTREAM DIRECTION AT A UNIFORM RATE BY MEANS OF POWER CABLE WINCHES OR SELF-PROPELLED TRACTORS AT EACH MANHOLE, STOPPING AND ROTATING THE CAMERA HEAD AT EACH LATERAL CONNECTION, DEFECT OR BOTH TO ALLOW FOR ADEQUATE EVALUATION. THE CONTRACTOR SHALL STOP WHEN NECESSARY TO ENSURE PROPER DOCUMENTATION OF THE PIPE CONDITION, BUT IN NO CASE SHALL THE CAMERA BE PULLED AT A SPEED GREATER THAN 30" PER MINUTE. A CLEAR PICTURE SHALL BE PROVIDED LOOKING IN EACH DIRECTION. BOTH PRE AND POST VIDEO INSPECTIONS SHALL BE SUBMITTED TO THE ENGINEER.
- 4.9. MEASUREMENT FOR LOCATION OF DEFECTS SHALL BE ABOVE GROUND BY MEANS OF A MEASURING DEVICE. FOOTAGES SHOWN IN THE DIGITAL FILES SHALL CONSIDER WITH HORIZONTAL LENGTHS FROM STATIONING AS SHOWN ON THE PLANS. FOOTAGE MEASUREMENTS SHALL BEGIN AT THE CENTERLINE OF THE UPSTREAM MANHOLE OR SEWER DRAIN ACCESS POINT, UNLESS PERMISSION IS GIVEN BY THE ENGINEER TO DO OTHERWISE.
- 4.10. THE CONTRACTOR SHALL CLEAN THE SEWER MAINS PRIOR TO VIDEO INSPECTING AS NECESSARY TO ADEQUATELY PERFORM THE VIDEO RECORDING OPERATION. IF THE CAMERA WILL NOT PASS THROUGH THE ENTIRE PIPELINE SECTION, THE CONTRACTOR SHALL RESET THE EQUIPMENT AT THE DOWNSTREAM MANHOLE AND ATTEMPT TO INSPECT THE SECTION OF PIPE FROM THE OPPOSITE DIRECTION. IF THE CAMERA FAILS TO PASS THROUGH THE ENTIRE SECTION, IT SHALL BE ASSUMED THAT AN OBSTRUCTION EXISTS. EFFORTS TO VIDEO RECORD THAT SECTION OF PIPE SHALL BE TEMPORARILY SUSPENDED AND THE CONTRACTOR SHALL NOTIFY THE ENGINEER. UPON REMOVAL OF THE OBSTRUCTION, THE CONTRACTOR SHALL COMPLETE THE INSPECTION.
- 4.11. IF AN OBSTRUCTION IS ENCOUNTERED DURING THE POST-CONSTRUCTION VIDEO INSPECTION, THE CONTRACTOR SHALL REMOVE THE OBSTRUCTION BY EXCAVATION, REPAIR, OR OTHER MEANS APPROVED BY THE ENGINEER AT THE CONTRACTOR'S EXPENSE, IN ORDER THAT VIDEO INSPECTION MAY CONTINUE.
- 4.12. THE SYSTEM USED TO MOVE THE CAMERA THROUGH THE PIPE SHALL NOT OBSTRUCT THE CAMERA'S VIEW. THE CONTRACTOR SHALL CALIBRATE THE MEASURING DEVICE EACH DAY WITH A KNOWN DISTANCE TO THE SATISFACTION OF THE ENGINEER PRIOR TO STARTING THE INSPECTION AND VIDEO RECORDING PROCESS.
- 4.13. THE CONTRACTOR SHALL OBTAIN THE ENGINEER'S APPROVAL FOR ANY ADDITIONAL POINT REPAIRS.
5. TOLERANCES ENCOUNTERED FOLLOWING INSPECTION SHALL BE ADDRESSED AS FOLLOWS:
- 5.A. FOR NEW UNDERGROUND SEWER INSTALLATIONS, THE MAXIMUM OPERATIONAL TOLERANCE FOR SAG SHALL BE 1/2". WHEN VIDEO RECORDED INSPECTION IS USED TO CHECK FOR SAG, A CALIBRATED 1/4" DIAMETER STEEL BAR "SAG GAGE" OR APPROVED EQUAL DEVICE LOCATED IN FRONT OF THE CAMERA, SHALL BE USED TO MEASURE THE DEPTH OF SAG.
- 5.B. IF THE ENGINEER DETERMINES THAT THE DEFICIENCIES OR SAGS ARE NON-REPAIRABLE IN PLACE, THE AFFECTED PORTION(S) SHALL BE RECONSTRUCTED.
6. THE CONSTRUCTION OF PCC SEWER MANHOLE PER VCMWD S-4 OR VCMWD S-5 POURED-IN-PLACE MANHOLE BASES SHALL BE A MONOLITHIC POUR FINISHED COMPLETE AT TIME OF POUR. EACH NEW MANHOLE SHALL BE VACUUM TESTED PRIOR TO BACK FILLING. THE TEST SHALL BE CONDUCTED IMMEDIATELY AFTER PLACEMENT OF PRE-CAST UNITS WITH POLYMER MORTAR/BUTYL SEALANT. ALL PIPES IN THE MANHOLE SHALL BE SECURELY PLUGGED. THE TEST HEAD SHALL BE PLACED AT THE INSIDE OF THE TOP PRE-CAST UNIT PRIOR TO THE INSTALLATION OF THE GRADE RING, AND THE SEAL INFLATED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- 6.1. A VACUUM OF 10 PSI SHALL BE DRAWN AND THE VACUUM PUMP SHUT OFF. WITH THE VALVE CLOSED, THE TIME SHALL BE MEASURED FOR THE VACUUM TO DROP TO 9 PSI. THE MANHOLE SHALL PASS IF THE TIME IS GREATER THAN 75 SECONDS. IF THE MANHOLE FAILS THE INITIAL TEST, NECESSARY REPAIRS SHALL BE MADE WITH NO SHRINK GROUT WHILE VACUUM IS STILL BEING DRAWN. RETESTING SHALL PROCEED UNTIL A SATISFACTORY TEST IS OBTAINED.
- 6.2. POLYMER MORTAR SHALL BE USED TO JOIN PRE-CAST COMPONENTS ON ALL MANHOLES TO CREATE WATERTIGHT JOINTS TO RESIST INFILTRATION. THE MORTAR SHALL BE MIXED IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATIONS, AND SHALL NOT EXCEED FIVE PARTS SAND TO ONE PART POLYMER. ACCEPTABLE JOINT SEALANT PRODUCTS SHALL BE SKIDDER 31 AND 32 HI-MOD GEL MANUFACTURED BY Sika CORPORATION, 490 EPOXY PUTTY AND 498 UNDERWATER EPOXY PUTTY MANUFACTURED BY ENGARD COATINGS, AND CS 102 BUTYL GASKETS (ROPE FORM) MANUFACTURED BY CONCRETE SEALANTS OR APPROVED EQUAL.
- 6.3. THE CONCRETE OR OTHER SURFACES THAT ARE TO ADHERE TO POLYMER MORTAR SHALL BE FREE FROM DUST, LOOSE AGGREGATES, OIL, GREASE OR OTHER CONTAMINANTS.
- 6.4. ON ALL MANHOLES, CONTRACTOR SHALL APPLY WATERPROOFING AGENT, CONSISTING OF A COAL TAR EMULSION ON ALL EXTERIOR SURFACES. THE EMULSION SHALL BE THICKENED 46-465, OR APPROVED EQUAL. THE EMULSION SHALL BE APPLIED IN NO LESS THAN TWO COATS TO ACHIEVE A TOTAL DRY THICKNESS OF .25 MILS. MINIMUM. THE EXTERIOR EMULSION COATINGS SHALL BE APPLIED PRIOR TO DELIVERY TO THE JOBSITE. IN ADDITION, A BITUMASTIC BAND 6 INCHES WIDE SHALL BE APPLIED AT ALL JOINTS ON EXTERIOR OF SUCH MANHOLES THAT SHALL BE WATERPROOFED.
- 6.5. WHEN COMPLETED, ALL MANHOLES SHALL BE WATERTIGHT WITH ZERO INFILTRATION OF GROUNDWATER.

UTILITY PLANS FOR
PROJECT NAME
COUNTY OF SAN DIEGO TRACT NO. XXXX



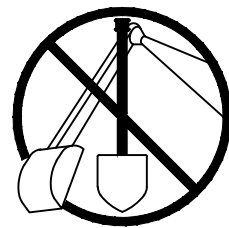
KEY MAP LEGEND:

- ③
- UTILITY SHEETS
- SUBDIVISION BOUNDARY
- TRACT BOUNDARY

SHEET INDEX

SHEET XX VCMWD UTILITY TITLE SHEET
SHEET XX VCMWD STREET SECTIONS
SHEET XX VCMWD DETAILS & LATERAL TABLES
SHEET XX THRU XX VCMWD UTILITY PLAN & PROFILE

DIGALERT



CALL BEFORE YOU DIG

1-800-227-2600

2 WORKING DAY
NOTICE REQUIRED

WORK TO BE DONE

IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE ACCORDING TO THESE PLANS, THE CURRENT SAN DIEGO COUNTY DEPARTMENT OF PUBLIC WORKS DESIGN STANDARD SPECIFICATIONS AND STANDARD REFERENCE DRAWINGS. THE WATER FACILITIES WORK SHALL BE IN ACCORDANCE WITH THE CURRENT STANDARD SPECIFICATIONS AND DRAWINGS OF VALLEY CENTER MUNICIPAL WATER DISTRICT.

LEGEND:

	EXISTING	PROPOSED
RIGHT OF WAY.....	----	----
PROPERTY LINE.....	----	----
CENTERLINE.....	-----	-----
EASEMENT.....	-----	-----
CONTOUR.....	-----1300-----	-----1300-----
EDGE OF PAVEMENT.....	-----///-----	-----///-----
CABLE LINE.....	-----C-----	-----C-----
ELECTRICAL (OVERHEAD).....	-----OH-E-----	-----OH-E-----
ELECTRICAL (UNDERGROUND).....	-----E-----	-----E-----
GAS MAIN.....	-----G-----	-----G-----
TELEPHONE LINE.....	-----T-----	-----T-----
IRRIGATION LINE.....	-----IRR-----	-----IRR-----
RECYCLED WATER MAIN.....VCMWDSD W-17.....	-----RW-----	-----RW-----
RECYCLED WATER SERVICE.....VCMWDSD W-2, W-4, W-5.....	-----RW-----	-----RW-----
SEWER MAIN.....VCMWDSD S-4,S-8.....	-----S-----	-----S-----
SEWER MANHOLE.....VCMWDSD S-4, S-5, S-6, S-7 (SELECT AS APPLICABLE).....	-----○-----	-----○-----
SEWER LATERAL.....VCMWDSD S-11, S-12 (SELECT AS APPLICABLE).....	-----S-----	-----S-----
FORCE MAIN.....VCMWDSD S-4, S-8.....	-----FM-----	-----FM-----
WATER SERVICE.....VCMWDSD W-2, W-3, W-3A, W-4, W-5, W-6 (SELECT AS APPLICABLE)	-----W-----	-----W-----
FIRE SERVICE.....VCMWDSD W-7, W-8.....	-----SRF-----	-----SRF-----
BLOW OFF ASSEMBLY.....VCMWDSD W-2, W-9, W-11 (SELECT AS APPLICABLE).....	-----●-----	-----●-----
AIR VACUUM & BLOW OFF COMB. VCMWDSD W-2, W-10, W-16.....	-----□-----	-----□-----
FIRE HYDRANT ASSEMBLY.....VCMWDSD W-2, W-12.....	-----⊗-----	-----⊗-----
AIR & VACUUM RELEASE ASSEMBLY.VCMWDSD W-2, W-13, W-14, W-16 (SELECT AS APPLICABLE).....	-----■-----	-----■-----
WATER MAIN.....VCMWDSD W-17.....	-----W-----	-----W-----
CONCRETE THRUST BLOCK.....VCMWDSD W-20.....	-----◀-----	-----◀-----
GATE/BUTTERFLY VALVE.....VCMWD SPEC. 15100, 15102.....	-----⊗-----	-----⊗-----
WATER QUALITY SAMPLING STATION...VCMWDSD W-35.....	-----SD-----	-----SD-----
STORM DRAIN.....	-----SD-----	-----SD-----

TOPOGRAPHY SOURCE

ASSESSOR'S PARCEL NO.

BASIS OF BEARING

LEGAL DESCRIPTION

BENCHMARK

SITE ADDRESS

OWNER/APPLICANT

ENGINEER OF WORK

NAME _____
ADDRESS _____
CITY, STATE, ZIP CODE _____
PHONE _____

NAME _____
ADDRESS _____
CITY, STATE, ZIP CODE _____
PHONE _____

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSION CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE COUNTY OF SAN DIEGO, OR ITS AGENTS IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR THE PROJECT DESIGN.

ENGINEER NAME, R.C.E. XXXXX DATE _____

OWNER'S CERTIFICATE

IT IS AGREED THAT FIELD CONDITIONS MAY REQUIRE CHANGES TO THESE PLANS.

IT IS FURTHER AGREED THAT THE DEVELOPER SHALL HAVE A REGISTERED CIVIL ENGINEER MAKE SUCH CHANGES, ALTERATIONS, OR ADDITIONS TO THESE PLANS WHICH THE DIRECTOR OF PUBLIC WORKS DETERMINES ARE NECESSARY AND DESIRABLE FOR THE PROPER COMPLETION OF THE IMPROVEMENTS. PROVIDED HOWEVER, SUCH CHANGE, ALTERATIONS OR ADDITIONS SHALL NOT EXCEED 10% OF THE ORIGINAL ESTIMATED COST OF THE IMPROVEMENTS WITHOUT THE WRITTEN CONSENT OF THE SURVEY COMPANY.

I FURTHER AGREE TO COMMENCE WORK ON ANY IMPROVEMENTS SHOWN ON THESE PLANS WITHIN 60 DAYS AFTER ISSUANCE OF CONSTRUCTION PERMIT AND TO PURSUE SUCH WORK ACTIVELY ON EVERY NORMAL WORKING DAY UNTIL COMPLETED, IRRESPECTIVE AND INDEPENDENT OF ANY OTHER WORK ASSOCIATED WITH THIS PROJECT UNDER MY CONTROL.

OWNER DATE _____

DESIGN GUIDE EXHIBIT 'D-1'	VALLEY CENTER MUNICIPAL WATER DISTRICT	VCMWD APPROVED CHANGES				BENCH MARK	
STANDARD TITLE SHEET (PART OF COUNTY OF SD IMPROVEMENT PLAN SET)	VALID FOR ONE YEAR FROM DATE OF SIGNATURE	NO.	DESCRIPTION:	APPROVED BY:	DATE:	DESCRIPTION:	
	GENERAL MANAGER _____ DATE _____					LOCATION: _____	
	DISTRICT ENGINEER _____ DATE _____					RECORD FROM: _____	
	DIRECTOR OF OPERATIONS/FACILITIES _____ DATE _____					ELEVATION: _____ DATUM: _____	

ENGINEER OF WORK
COMPANY LOGO

COUNTY NOTE

THESE PLANS ARE REVIEWED BY THE COUNTY OF SAN DIEGO FOR BONDING PURPOSES ONLY.

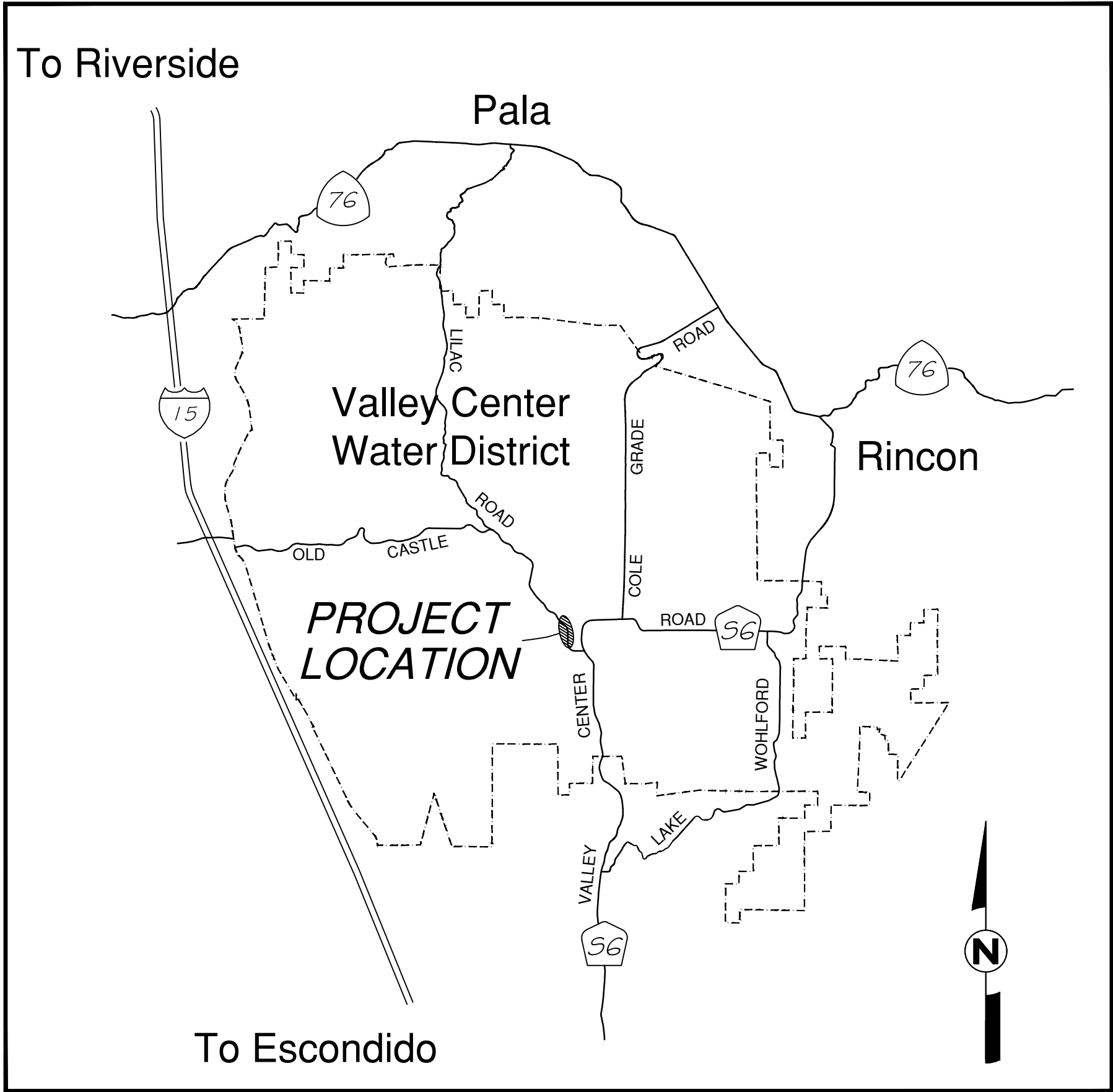
COUNTY NOTE REVIEWED FOR BONDING PURPOSES ONLY		
PRIVATE CONTRACT		
SHEET XX	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	XX SHEETS
UTILITY PLAN FOR:		
PROJECT NAME		
COUNTY OF SAN DIEGO TM XXXX CALIFORNIA COORDINATE INDEX <u>XXX-XXXX</u>		
APPROVED FOR WILLIAM P. MORGAN COUNTY ENGINEER	ENGINEER OF WORK DATE: _____ NAME R.C.E. XXXXX	
BY: _____ DATE: _____	IMPROVEMENT PLAN NO. PDSXXXX-XXXXXX-XXXXX	

ENGINEER'S NAME:
PHONE: _____

VALLEY CENTER MUNICIPAL WATER DISTRICT

PROJECT TITLE (PROJECT NO. 01-06-78-XXXXXX)

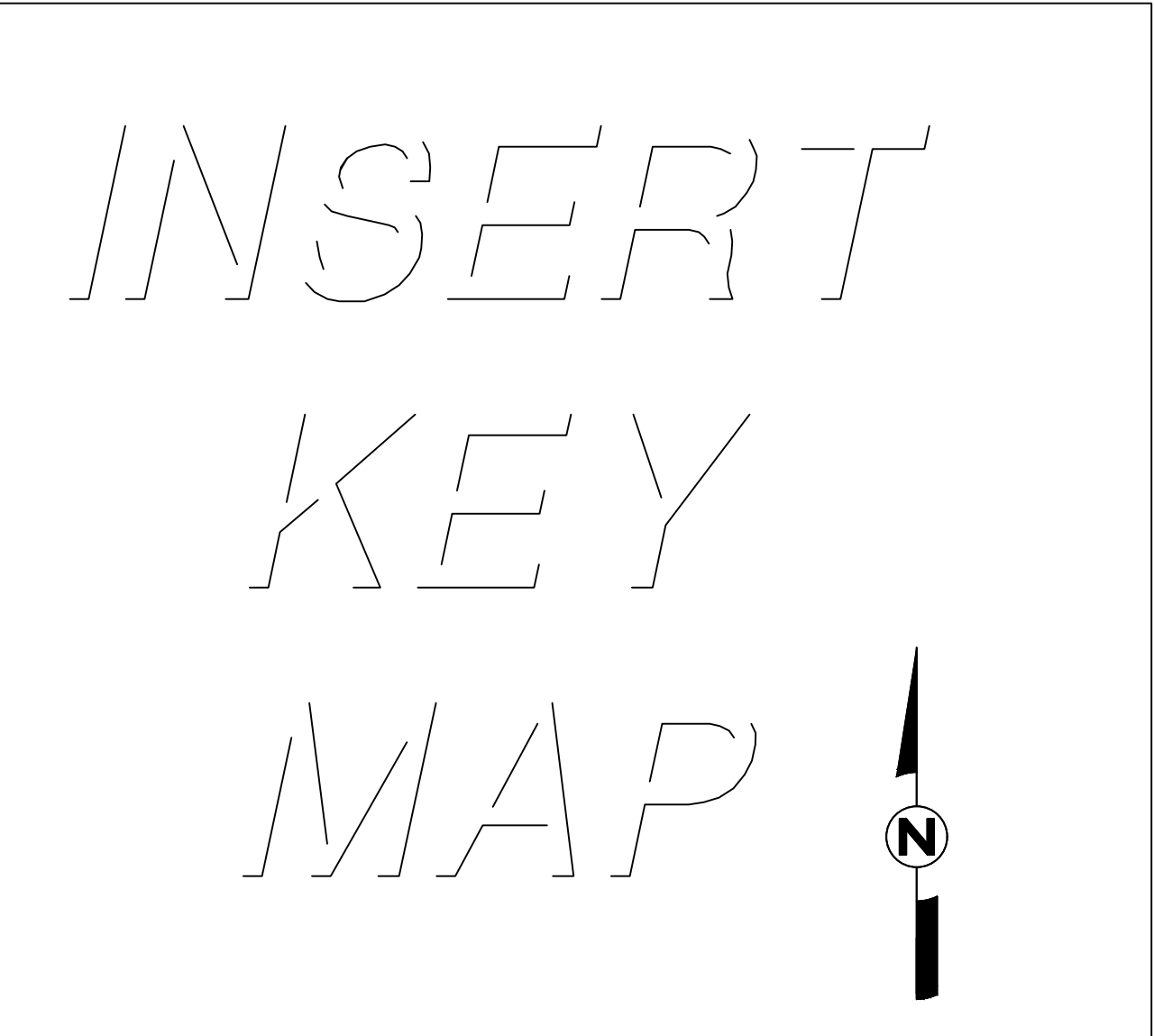
ONLY FOR VCMWD
CIP PROJECTS



VICINITY MAP
NOT TO SCALE

BOARD OF DIRECTORS

ROBERT A. POLITO	PRESIDENT
ENRICO P. FERRO	VICE PRESIDENT
DANIEL E. HOLTZ	DIRECTOR
OLIVER J. SMITH	DIRECTOR
COOPER T. NESS	DIRECTOR
STAFF	
GARY T. ARANT	GENERAL MANAGER
WALLY T. GRABBE	DISTRICT ENGINEER/DEPUTY G.M.
JAMES V. PUGH	DIRECTOR OF FINANCE
BRIAN E. LOVELADY	DIRECTOR OF OPERATIONS
ANDO PILVE	DIRECTOR OF INFORMATION TECHNOLOGY



THOMAS BROS. MAP GUIDE
PG. XXXX
KEY MAP LEGEND:

3 IMPROVEMENT SHEETS
ROAD CENTERLINE

KEY MAP
1"=XXX'

ABBREVIATIONS			
AB	AGGREGATE BASE	MIN	MINIMUM
AC	ASPHALTIC CONCRETE	MOD	MODIFIED
ACP	ASBESTOS CEMENT PIPE	NO	NUMBER
AV	AIR VACUUM VALVE	OD	OUTSIDE DIAMETER
BC	BEGIN CURVE	OHE	OVERHEAD ELECTRICAL
BFP	BACKFLOW PREVENTER	PCC	PORTLAND CEMENT CONCRETE/
BO	BLOW OFF		POINT COMPOUND CURVATURE
BP	BOTTOM OF PIPE		PROTECTED IN PACE
BVC	BEGIN VERTICAL CURVE	PIP	POINT OF INTERSECTION
CATV	CABLE TELEVISION	PIV	POST INDICATOR VALVE
CB	CATCH BASIN	PL	PROPERTY LINE
CI	CURB INLET	PP	POWER POLE
CIP	CAST IRON PIPE	PRS	PRESSURE REDUCING STATION
CLR	CLEAR	PSI	POUNDS PER SQUARE INCH
CML&C	CEMENT MORTAR LINED & COATED	PVCC	POINT OF COMPOUND VERTICAL CURVE
CMP	CORRUGATED METAL PIPE	PVC	POLYVINYL CHLORIDE
CO	CLEANOUT	PVT	PRIVATE
CONC	CONCRETE	RCP	REINFORCED CONCRETE PIPE
CTS	CATHODIC TESTING STATION	RSGV	RESILIENT SEAT GATE VALVE
DIM	DIMENSION	RW	RECYCLED WATER
DIP	DUCTILE IRON PIPE	S	SEWER
DWG	DRAWING	SPEC	SPECIFICATIONS
EA	END CURVE	SCP	STEEL CYLINDER PIPE
EC	ELECTRIC	SD	STORM DRAIN
ELEC	ELEVATION	SDCDS	SAN DIEGO COUNTY DESIGN STANDARDS
ELEV	END VERTICAL CURVE	SDG&E	SAN DIEGO GAS & ELECTRIC
EVC	EXISTING	SDRSD	SAN DIEGO REGIONAL STANDARD DRAWINGS
FG	FIRE DEPARTMENT CONNECTION	SF	SQUARE FEET
FL	FINISHED GRADE	SHT	SHEET
FM	FORCE MAIN	SS	STAINLESS STEEL
FS	FINISH SURFACE, FIRE SERVICE	STA	STATION
GB	GRADE BREAK	STD	STANDARD
GV	GATE VALVE	STL	STEEL
HDPE	HIGH DENSITY POLYTHYLENE	TB	THRUST BLOCK\TOP OF BERM
HP	HIGH POINT	TC	TOP OF CURB
HW	HEADWALL	TCO	TOP OF CLEANOUT
ID	INSIDE DIAMETER	TEL	TELEPHONE
IE	INVERT ELEVATION	TG	TOP OF GRATE
IRR	IRRIGATION	TP	TOP OF PIPE
LF	LINEAR FOOT	TYP	TYPICAL
LP	LOW POINT	VC	VERTICAL CURVE
M	METER	W	WATER
MH	MANHOLE	WM	WATER METER
		X-ING	CROSSING (UTILITY)

ONLY FOR
DEVELOPER
PROJECTS

SHEET INDEX
SHEET X TITLE SHEET
SHEET X NOTES & DETAILS
SHEETS X THRU X..... UTILITY PLAN & PROFILE

TOPOGRAPHY SOURCE

BASIS OF BEARING

BENCHMARK

ASSESSOR'S PARCEL NO.

LEGAL DESCRIPTION

SITE ADDRESS



DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE BUSINESS AND PROFESSION CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT STANDARDS.

I UNDERSTAND THAT THE CHECK OF PROJECT DRAWINGS AND SPECIFICATIONS BY VALLEY CENTER MUNICIPAL WATER DISTRICT IS CONFINED TO A REVIEW ONLY AND DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR THE PROJECT DESIGN.

NAME OF ENGINEER R.C.E. XXXXX DATE



SHOW VCMWD, CITY OR
COUNTY AS-BUILTS THAT
PERTAIN TO LIMITS OF WORK

ONLY FOR
DEVELOPER
PROJECTS

OWNER/APPLICANT

NAME

ADDRESS

CITY, STATE, ZIP CODE

PHONE

ENGINEER OF WORK

NAME

ADDRESS

CITY, STATE, ZIP CODE

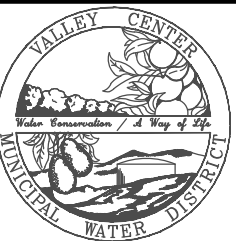
PHONE

ENGINEER OF WORK
COMPANY LOGO

REFERENCE DRAWINGS	NO.	APPROVED CHANGES	APPROVED BY	DATE	VALLEY CENTER MUNICIPAL WATER DISTRICT VALID FOR ONE YEAR FROM DATE OF SIGNATURE
					GENERAL MANAGER DATE
					DISTRICT ENGINEER DATE
					DIRECTOR OF OPERATIONS/FACILITIES DATE

VALLEY CENTER MUNICIPAL WATER DISTRICT

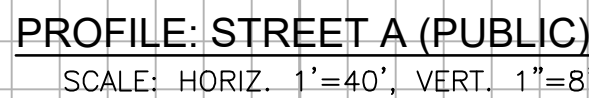
29300 VALLEY CENTER ROAD P. O. BOX 67
VALLEY CENTER, CALIFORNIA 92082
(760) 735-4500



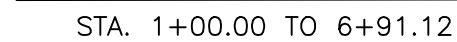
VCMWD JOB #
DATE:
DRAWN BY:
CHECKED BY:

DESIGN GUIDE EXHIBIT 'D-2'	
STANDARD TITLE SHEET (VCMWD PROCESSING ONLY)	
X of X	

XX% DESIGN

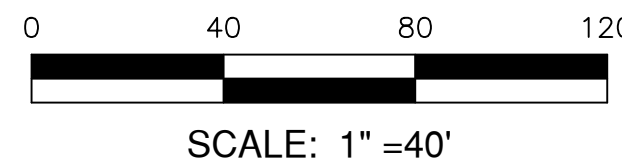


1 1+41.60 BOT 12" SD 1295.20 TOP SWR 1290.90	4 3+69.10~11.0' RT BOT WTR 1293.62 TOP SWR 1288.39
2 1+41.51~11.0' RT BOT 12" SD 1295.15 TOP WTR 1293.95	5 7+33.67 BOT WTR 1290.54 TOP SWR 1284.98
3 2+28.95~11.0' RT BOT WTR 1293.67 TOP SWR 1292.46	



SEWER DATA				
NO.	DELTA OR BRG.	RADIUS	LENGTH	REMARKS
1	N 00°30'20" E	---	59.75'	8" PVC SDR 26
2	N 00°30'20" E	---	48.20'	8" PVC SDR 26
3	N 00°30'20" E	---	110.85'	8" PVC SDR 26
4	Δ=7°14'55"	200.00'	31.84'	8" PVC SDR 26
5	Δ=59°09'56"	200.00'	200.00'	8" PVC SDR 26
6	N 65°54'31" W	---	119.49'	8" PVC SDR 26
7	Δ=15°09'22"	220.00'	58.13'	8" PVC SDR 26

WATER DATA				
NO.	DELTA OR BRG.	RADIUS	LENGTH	REMARKS
1	N00°30'20"E	--	239.81'	8" PVC C900 CL235
2	Δ=66°24'51"	211.00'	244.58'	8" PVC C900 CL235
3	N65°54'31"W	--	119.49'	8" PVC C900 CL235
4	Δ=9°39'31"	209.00'	27.94'	8" PVC C900 CL235
5	N82°48'53"E	--	23.45'	8" PVC C900 CL235

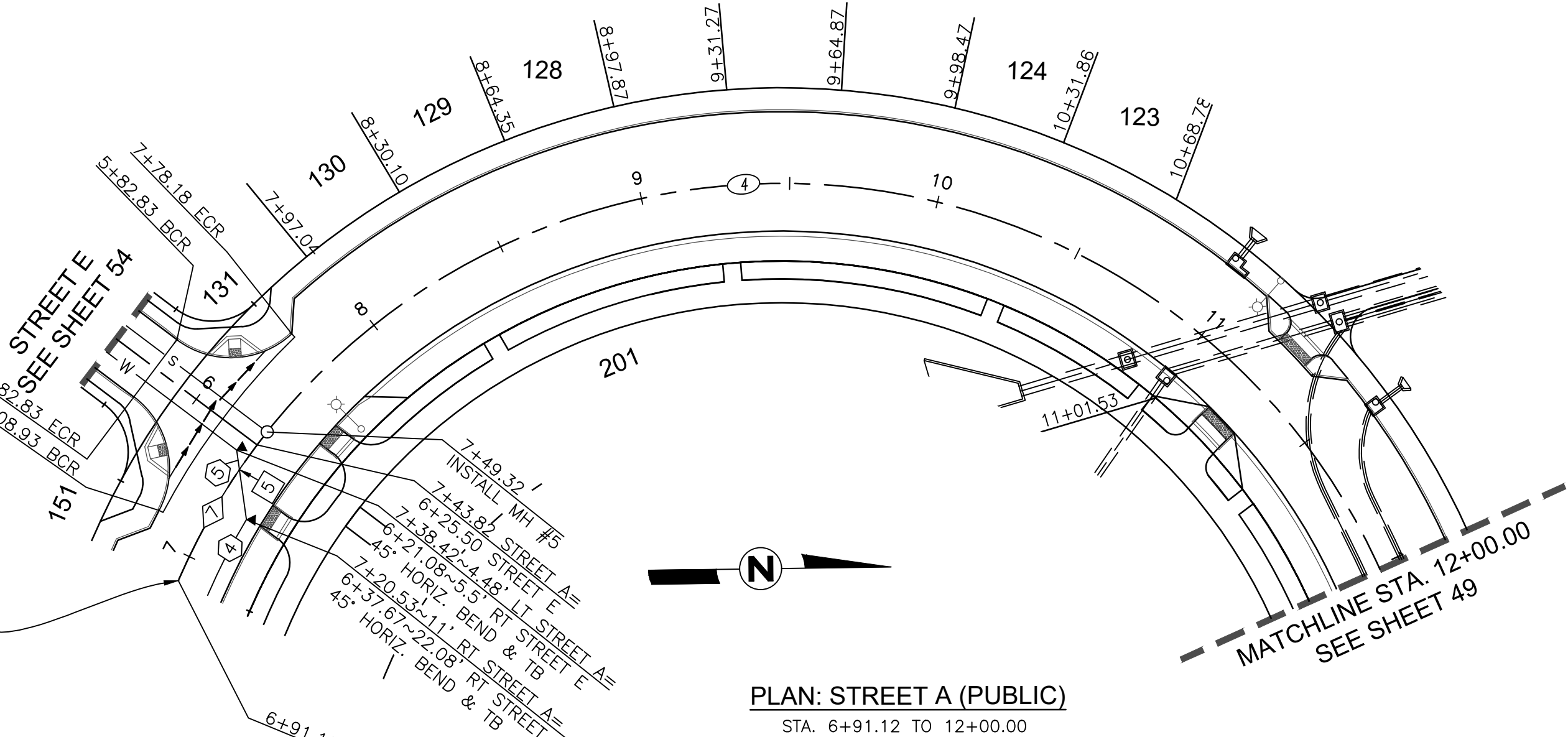
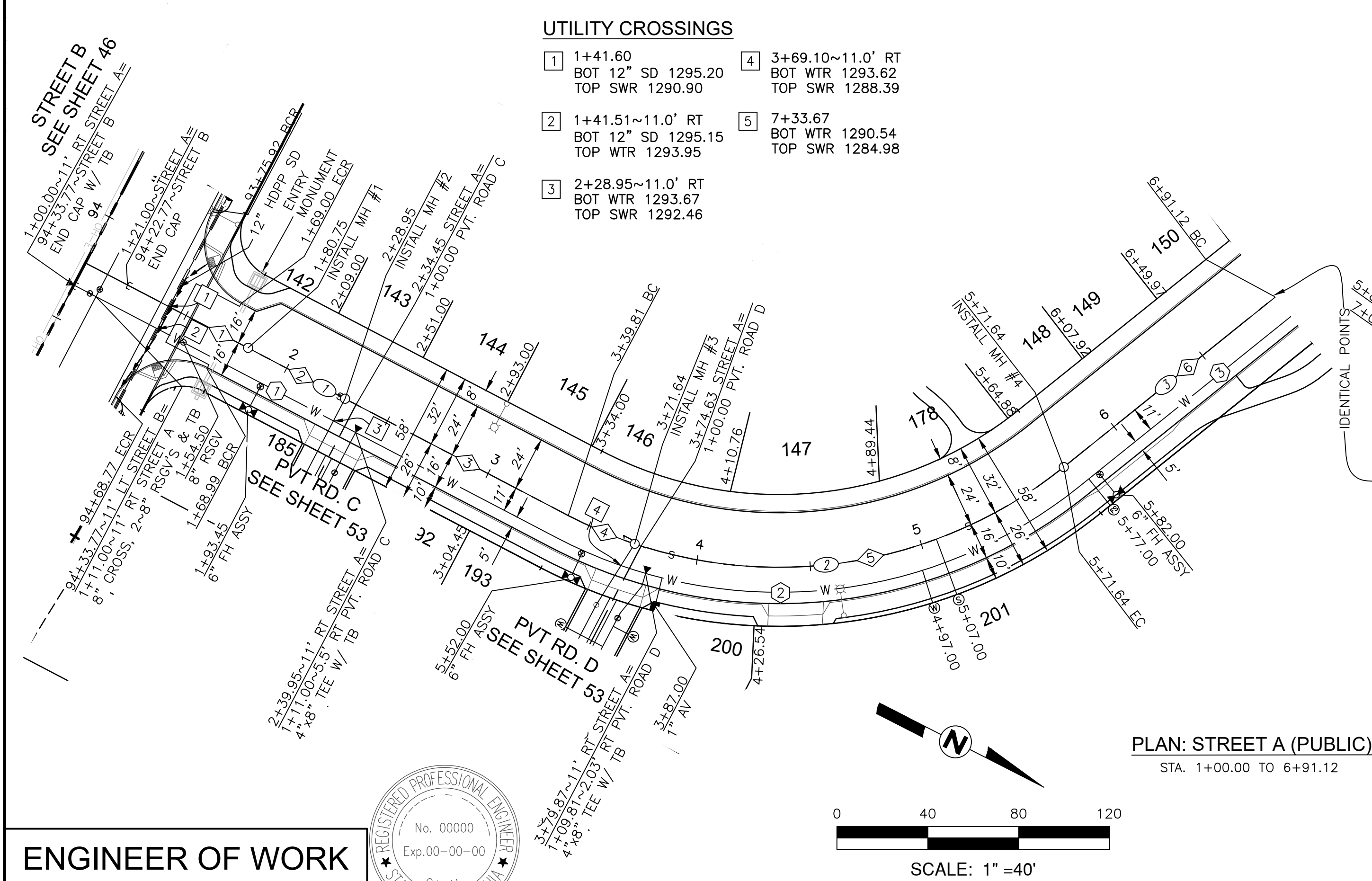
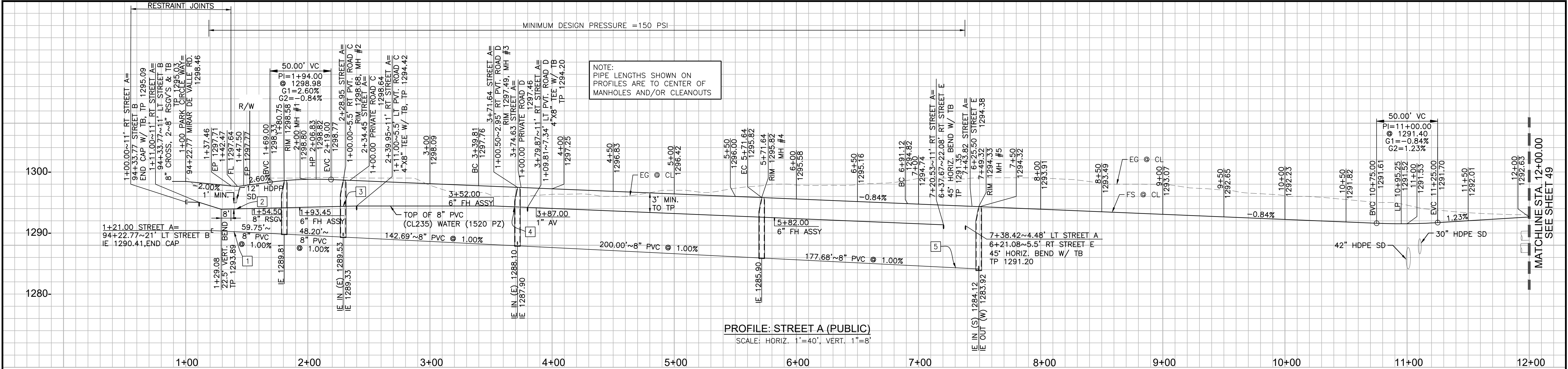


CENTERLINE DATA			
NO.	DELTA OR BRG.	RADIUS	LENGTH
1	N00°30'20"E	--	239.81'
2	Δ=66°24'51"	200.00'	231.83'
3	N65°54'31"W	--	119.49'
4	Δ=132°31'49"	220.00'	508.88'

DESIGN GUIDE EXHIBIT 'E-1'	VALLEY CENTER MUNICIPAL WATER DISTRICT	VCMWD APPROVED CHANGES				BENCH MARK	
STANDARD PLAN & PROFILE (PART OF COUNTY OF SD IMPROVEMENT PLAN SET)	VALID FOR ONE YEAR FROM DATE OF SIGNATURE	NO.	DESCRIPTION:	APPROVED BY:	DATE:	DESCRIPTION: _____	_____
	DISTRICT ENGINEER _____ DATE _____					LOCATION: _____	_____
						RECORD FROM: _____	_____
						ELEVATION: _____ DATUM: _____	_____

COUNTY NOTE REVIEWED FOR BONDING PURPOSES ONLY			
PRIVATE CONTRACT			
SHEET XX	COUNTY OF SAN DIEGO DEPARTMENT OF PUBLIC WORKS	XX SHEETS	
UTILITY PLAN FOR: PROJECT NAME STREET A (PUBLIC), STA. 1+00.00 TO 12+00.00 COUNTY OF SAN DIEGO TM XXXX CALIFORNIA COORDINATE INDEX <u>XXX-XXXX</u>			
APPROVED BY WILLIAM P. MORGAN COUNTY ENGINEER		ENGINEER OF WORK: _____ DATE: _____ NAME _____ E.C.E. XXXXXX	
BY: _____ DATE: _____		IMPROVEMENT PLAN NO. PDSXXXX-XXXXXX-XXXXXX	

ENGINEER'S NAME:



SEWER DATA			
NO.	DELTA OR BRG.	RADIUS	REMARKS
1	N 00°30'20" E	---	8" PVC SDR 26
2	N 00°30'20" E	---	8" PVC SDR 26
3	N 00°30'20" E	---	8" PVC SDR 26
4	Δ=7°14'55"	200.00'	8" PVC SDR 26
5	Δ=59°09'56"	200.00'	8" PVC SDR 26
6	N 65°54'31" W	---	8" PVC SDR 26
7	Δ=15°09'22"	220.00'	8" PVC SDR 26

WATER DATA			
NO.	DELTA OR BRG.	RADIUS	REMARKS
1	N00°30'20"E	---	8" PVC C900 CL235
2	Δ=66°24'51"	211.00'	8" PVC C900 CL235
3	N65°54'31"W	---	8" PVC C900 CL235
4	Δ=9°39'31"	209.00'	8" PVC C900 CL235
5	N82°48'53"E	---	8" PVC C900 CL235

CENTERLINE DATA			
NO.	DELTA OR BRG.	RADIUS	LENGTH
1	N00°30'20"E	---	239.81'
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3	N65°54'31"W	---	119.49'
4	Δ=132°31'49"	220.00'	508.88'

ENGINEER OF WORK
COMPANY LOGO



REFERENCE DRAWINGS	NO.	APPROVED CHANGES	APPROVED BY	DATE

VALLEY CENTER MUNICIPAL WATER DISTRICT			

VALLEY CENTER MUNICIPAL WATER DISTRICT
29300 VALLEY CENTER ROAD P. O. BOX 67
VALLEY CENTER, CALIFORNIA 92082
(760) 735-4500



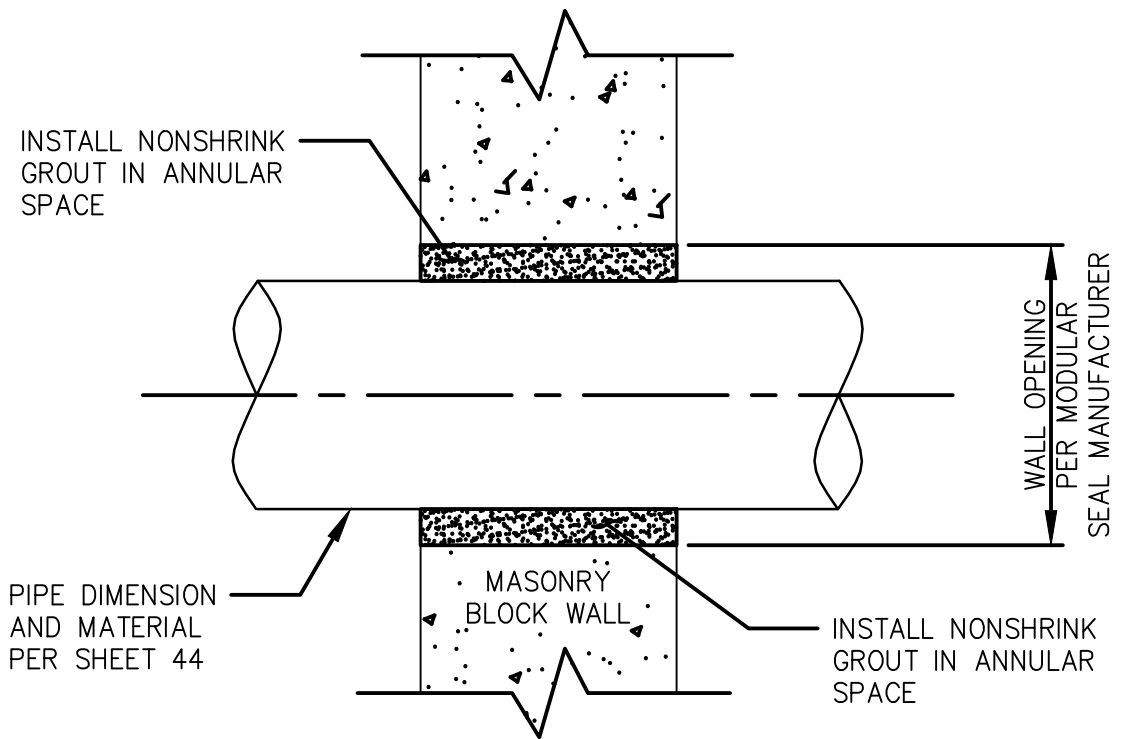
VCWMD JOB #	
DATE:	
DRAWN BY:	
CHECKED BY:	

DESIGN GUIDE EXHIBIT 'E'	
STANDARD PLAN & PROFILE IMPROVEMENT PLAN (VCWMD PROCESSING ONLY)	

X
X of X

XX% DESIGN

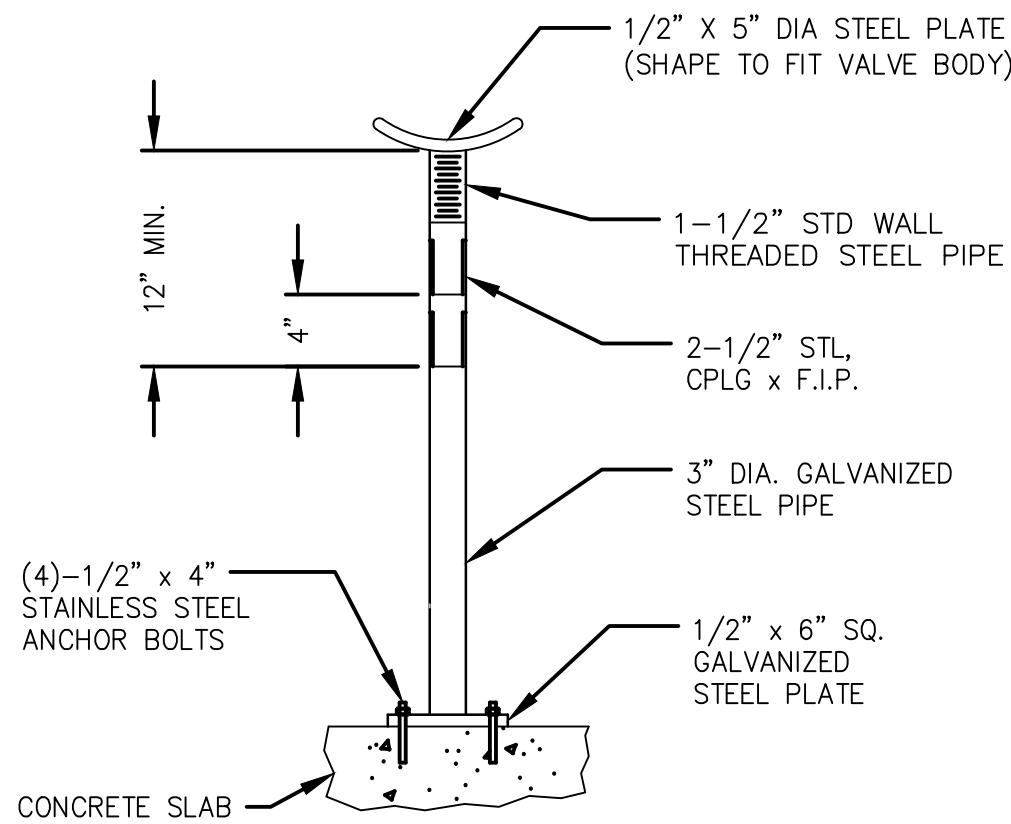
F:\Engineering\City3D\18\Design Guidelines\Design Guide Exhibits.dwg Jun 23, 2022 - 11:02am



WALL PENETRATION DETAIL

N.T.S.

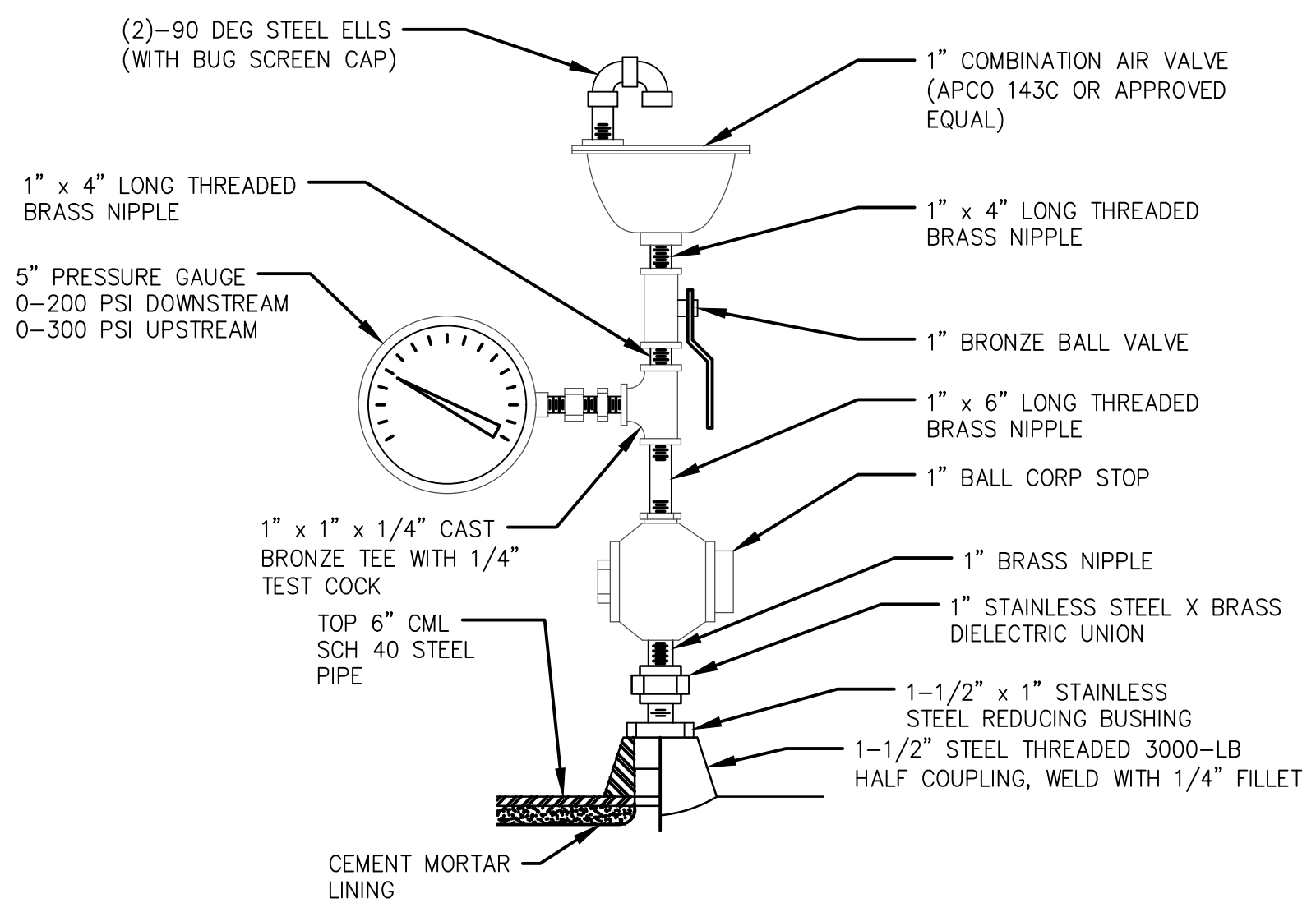
A
45



PIPE/VALVE SUPPORT DETAIL

N.T.S.

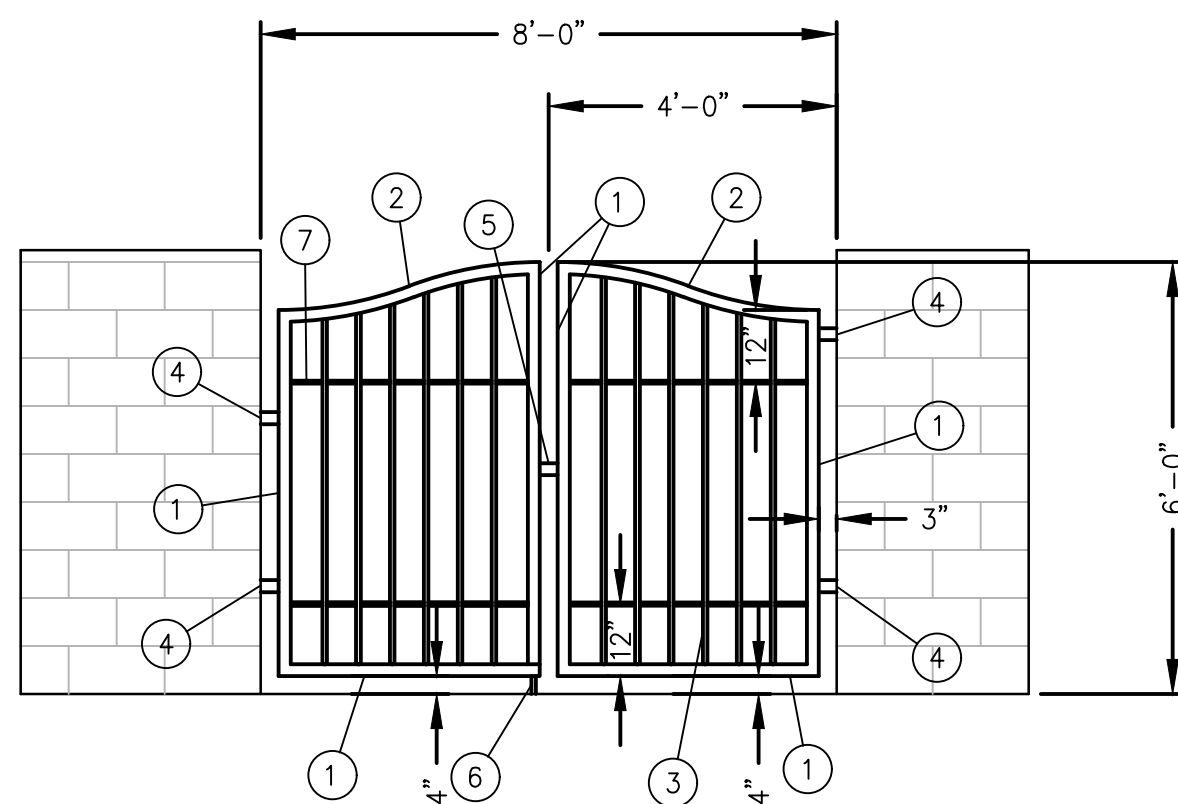
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PRESSURE GAUGE DETAIL

N.T.S.

C
45



MATERIALS LIST

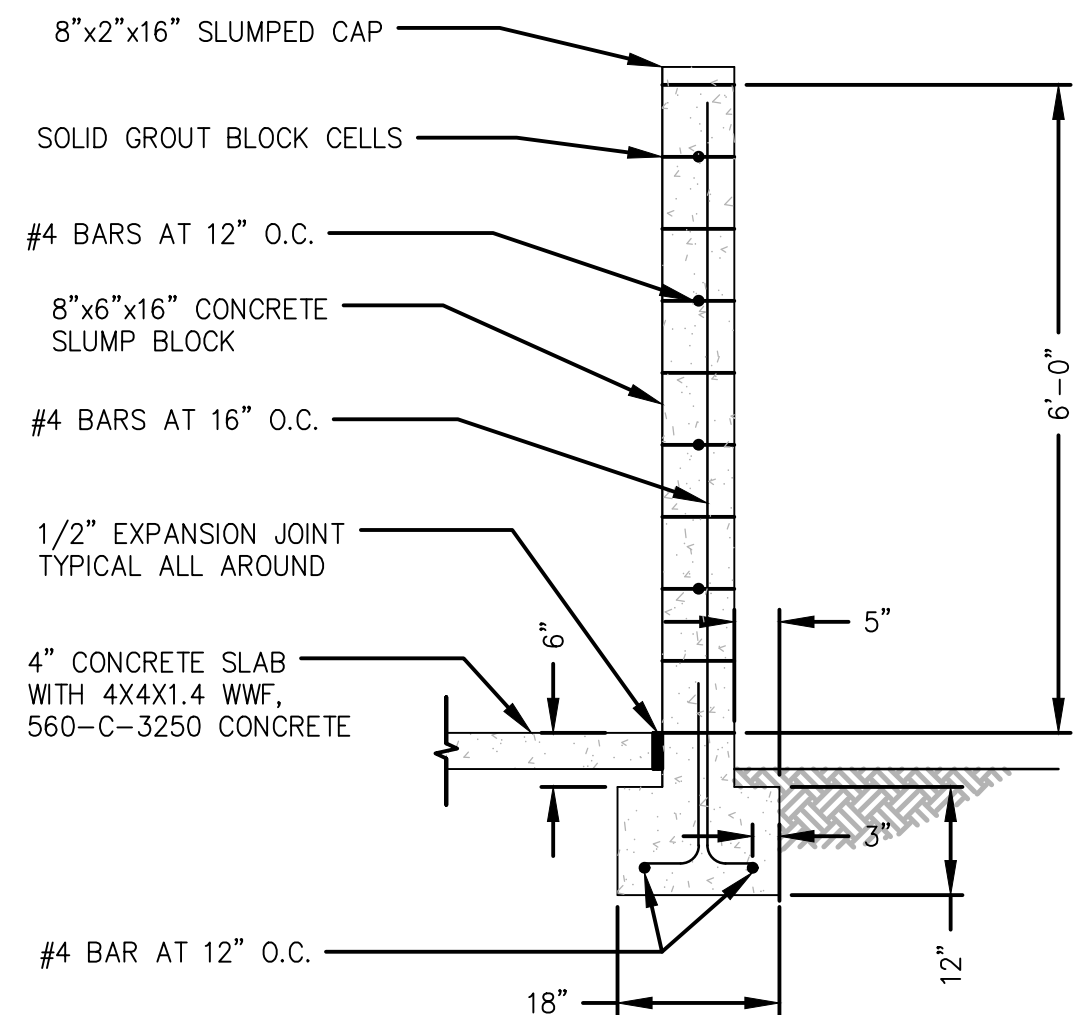
ITEM	DESCRIPTION
①	GATE FRAME 1 1/2" X 1 1/2" TUBING (0.083 WALL MIN.)
②	GATE FRAME 2" X 1" TUBING (0.083 WALL MIN.)
③	GATE PICKETS 3/4" X 3/4" TUBING (0.083 WALL MIN.) AT 6" O.C.
④	2 - 3/4" L-BOLT HINGES EACH GATE
⑤	1 - 2" X 1" X 3/16" ANGLE EACH GATE WITH 1/2" Ø HOLE FOR PADDOCK
⑥	3/4" CANE BOLT
⑦	HORIZONTAL BRACES 1/2" X 1" TUBING (0.083 WALL MIN.)

NOTE:
CONTRACTOR SHALL SUBMIT GATE DESIGN TO THE DISTRICT FOR APPROVAL PRIOR TO CONSTRUCTION OF THE GATE. ALL GATE MATERIALS TO BE ELECTROSTATIC POWDER COATED "PADRE BROWN" OR OTHER COLOR APPROVED BY THE DISTRICT.

WROUGHT IRON GATE DETAIL

N.T.S.

D
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MASONRY WALL DETAIL

N.T.S.

E
45

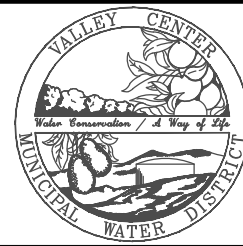
ENGINEER OF WORK
COMPANY LOGO



REFERENCE DRAWINGS	NO.	APPROVED CHANGES	APPROVED BY	DATE	VALLEY CENTER MUNICIPAL WATER DISTRICT
					DISTRICT ENGINEER _____ DATE _____

VALLEY CENTER MUNICIPAL WATER DISTRICT

29300 VALLEY CENTER ROAD P. O. BOX 67
VALLEY CENTER, CALIFORNIA 92082
(760) 735-4500



VCWMD JOB #	DESIGN GUIDE EXHIBIT 'F'	
DATE:	STANDARD DETAILS FOR CONSTRUCTION DRAWINGS	X
DRAWN BY:		
CHECKED BY:		X of X