PRECISE GRADING PLAN

SHEET INDEX

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NOTICE TO CONTRACTOR

1. CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL BE REQUIRED TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS, AND CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD DESIGN PROFESSIONAL HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF DESIGN PROFESSIONAL.
2. IF THIS PROJECT IS STAKED BY SURVEY CREWS OTHER THAN THOSE CREWS UNDER THE DIRECT SUPERVISION OF THE SIGNATORY ENGINEER, THE SIGNATORY ENGINEER WILL NO LONGER BE THE ENGINEER OF RECORD AND WILL HAVE NO RESPONSIBILITY AS TO THE FINAL CONSTRUCTED PROJECT. THE SIGNATORY ENGINEER WILL NOT BE RESPONSIBLE FOR ERRORS OR OMISSIONS THAT COULD HAVE BEEN CORRECTED DURING THE CONSTRUCTION OF THIS PROJECT, IF THE STAKING HAD BEEN DONE BY SURVEY CREWS UNDER HIS DIRECT SUPERVISION.

GRADING NOTES

1. GRADED SLOPES SHALL BE NO STEEPER THAN 2 HORIZONTAL TO 1 VERTICAL.
2. FILL SLOPES SHALL BE COMPACTED TO NO LESS THAN 90 PERCENT RELATIVE COMPACTION OUT TO THE FINISHED SURFACE.
3. ALL FILLS SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION AS DETERMINED BY ASTM TEST METHOD 1557, AND APPROVED BY THE SOILS ENGINEER. COMPACTION TESTS SHALL BE PERFORMED APPROXIMATELY EVERY TWO FEET IN VERTICAL HEIGHT AND OF SUFFICIENT QUANTITY TO ATTEST TO THE OVERALL COMPACTION EFFORT APPLIED TO THE FILL AREAS.
4. AREAS TO RECEIVE FILL SHALL BE CLEARED OF ALL VEGETATION AND DEBRIS, SCARIFIED AND APPROVED BY THE SOILS ENGINEER PRIOR TO PLACING OF THE FILL.
5. FILLS SHALL BE KEYED OR BENCHED INTO COMPETENT MATERIAL.
6. ALL EXISTING FILLS SHALL BE APPROVED BY THE SOILS ENGINEER OR REMOVED BEFORE ANY ADDITIONAL FILLS ARE ADDED.
7. ANY EXISTING IRRIGATION LINES AND CISTERNS SHALL BE REMOVED OR CRUSHED IN PLACE AND BACKFILLED AND APPROVED BY THE SOILS ENGINEER.
8. THE ENGINEERING GEOLOGIST AND SOILS ENGINEER SHALL, AFTER CLEARING AND PRIOR TO THE PLACEMENT OF FILL IN CANYONS, INSPECT EACH CANYON FOR AREAS OF ADVERSE STABILITY AND DETERMINE THE PRESENCE OF, OR POSSIBILITY OF FUTURE ACCUMULATION OF, SUBSURFACE WATER OR SPRING FLOW. IF NEEDED, DRAINS WILL BE DESIGNED AND CONSTRUCTED PRIOR TO THE PLACEMENT OF FILL IN EACH RESPECTIVE CANYON.
9. THE EXACT LOCATION OF THE SUBDRAINS SHALL BE SURVEYED IN THE FIELD FOR LINE AND GRADE.
10. ALL TRENCH BACKFILLS SHALL BE COMPACTED THROUGHOUT TO A MINIMUM OF 90 PERCENT RELATIVE COMPACTION, AND APPROVED BY THE SOILS ENGINEER. THE BUILDING DEPARTMENT MAY REQUIRE CORING OF CONCRETE FLAT WORK PLACED OVER UNTESTED BACKFILLS TO FACILITATE TESTING.
11. THE STOCKPILING OF EXCESS MATERIAL SHALL BE APPROVED BY THE CITY GRADING ENGINEER.
12. LANDSCAPING OF ALL SLOPES AND PADS SHALL BE IN ACCORDANCE WITH CHAPTER 15 OF THE NBMC.
13. ALL CUT SLOPES SHALL BE INVESTIGATED BOTH DURING AND AFTER GRADING BY AN ENGINEERING GEOLOGIST TO DETERMINE IF ANY STABILITY PROBLEM EXISTS. SHOULD EXCAVATION DISCLOSE ANY GEOLOGICAL HAZARDS OR POTENTIAL GEOLOGICAL HAZARDS, THE ENGINEERING GEOLOGIST SHALL RECOMMEND AND SUBMIT NECESSARY TREATMENT TO THE CITY GRADING ENGINEER FOR APPROVAL.
14. WHERE SUPPORT OR BUTTRESSING OF CUT AND NATURAL SLOPES IS DETERMINED TO BE NECESSARY BY THE ENGINEERING GEOLOGIST AND SOILS ENGINEER, THE SOILS ENGINEER WILL OBTAIN APPORVAL OF DESIGN, LOCATION AND CALCULATIONS FROM THE CITY GRADING ENGINEER PRIOR TO CONSTRUCTION.
15. THE ENGINEERING GEOLOGIST AND SOILS ENGINEER SHALL INSPECT AND TEST THE CONSTRUCTION OF ALL BUTTRESS FILLS AND ATTEST TO THE STABILITY OF THE SLOPE AND ADJACENT STRUCTURES UPON COMPLETION.
16. WHEN CUT PADS ARE BROUGHT TO NEAR GRADE THE ENGINEERING GEOLOGIST SHALL DETERMINE IF THE BEDROCK IS EXTENSIVELY FRACTURED OR FAULTED AND WILL READILY TRANSMIT WATER. IF CONSIDERED NECESSARY BY THE ENGINEERING GEOLOGIST AND SOILS ENGINEER, A COMPACTED FILL BLANKET WILL BE PLACED.
17. THE ENGINEERING GEOLOGIST SHALL PERFORM PERIODIC INSPECTIONS DURING GRADING.
18. NOTIFICATION OF NONCOMPLIANCE: IF, IN THE COURSE OF FULFILLING THEIR RESPONSIBILITY, THE CIVIL ENGINEER, THE SOILS ENGINEER, THE ENGINEERING GEOLOGIST OR THE TESTING AGENCY FINDS THAT THE WORK IS NOT BEING DONE IN CONFORMANCE WITH APPROVED GRADING PLANS, THE DISCREPANCIES SHALL BE REPORTED IMMEDIATELY IN WRITING TO THE PERSON IN CHARGE OF THE GRADING WORK AND TO THE CITY GRADING ENGINEER, RECOMMENDATIONS FOR CORRECTIVE MEASURES, IF NECESSARY, SHALL BE SUBMITTED TO THE CITY GRADING ENGINEER FOR APPROVAL.

REQUIRED INSPECTIONS

1. A PRE-GRADING MEETING SHALL BE SCHEDULED 48 HOURS PRIOR TO START OF GRADING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, GRADING CONTRACTOR, DESIGN CIVIL ENGINEER, GEOLOGIST, CITY GRADING ENGINEER OR THEIR REPRESENTATIVES. REQUIRED FIELD INSPECTION WILL BE OUTLINED AT THE MEETING.
2. A PRE-PAVING MEETING SHALL BE SCHEDULED 48 HOURS PRIOR TO START OF THE SUB-GRADE PREPARATION FOR THE PAVING WITH THE FOLLOWING PEOPLE PRESENT: OWNER, PAVING CONTRACTOR, DESIGN CIVIL ENGINEER, SOILS ENGINEER, CITY GRADING ENGINEER OR THEIR REPRESENTATIVES. REQUIRED FIELD INSPECTIONS WILL BE OUTLINED AT THE MEETING.
3. CONTINUOUS SPECIAL INSPECTION, PER SECTION 1705.6, SHALL BE PERFORMED BY THE GEOTECHNICAL ENGINEER DURING SHORING AND EXCAVATION OPERATIONS AND DURING REMOVAL OF SHORING.

811
Know what's below.
Call before you dig.
DIAL TOLL FREE
811
AT LEAST TWO DAYS BEFORE YOU DIG
UNDERGROUND SERVICE ALERT OF SOUTHERN CALIFORNIA
DATE REVISED: 7-1-06

GENERAL GRADING NOTES

1. ALL WORK SHALL CONFORM TO CHAPTER 15 OF THE NEWPORT BEACH MUNICIPAL CODE (NBMC), THE PROJECT SOILS REPORT AND SPECIAL REQUIREMENTS OF THE PERMIT.
2. DUST SHALL BE CONTROLLED BY WATERING AND/OR DUST PALLIATIVE.
3. SANITARY FACILITIES SHALL BE MAINTAINED ON THE SITE DURING THE CONSTRUCTION PERIOD.
4. WORK HOURS ARE LIMITED FROM 7:00 AM TO 6:30 PM MONDAY THROUGH FRIDAY; 8:00 AM TO 6:00 PM SATURDAYS; AND NO WORK SUNDAYS AND HOLIDAYS PER SECTION 10-28 OF THE NBMC.
5. NOISE, EXCAVATION, DELIVERY AND REMOVAL SHALL BE CONTROLLED PER SECTION 10-28 OF THE NBMC.
6. THE STAMPED SET OF APPROVED PLANS SHALL BE ON THE JOB SITE AT ALL TIMES.
7. PERMITTEE AND CONTRACTOR ARE RESPONSIBLE FOR LOCATING AND PROTECTING UTILITIES.
8. APPROVED DRAINAGE PROVISIONS AND PROTECTIVE MEASURES MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING THE GRADING OPERATION.
9. CESSPOOLS AND SEPTIC TANKS SHALL BE ABANDONED IN COMPLIANCE WITH THE UNIFORM PLUMBING CODE AND APPROVED BY THE BUILDING OFFICIAL.
10. HAUL ROUTES FOR IMPORT OR EXPORT OF MATERIALS SHALL BE APPROVED BY THE CITY TRAFFIC ENGINEER AND PROCEDURES SHALL CONFORM WITH CHAPTER 15 OF THE NBMC.
11. POSITIVE DRAINAGE SHALL BE MAINTAINED AWAY FROM ALL BUILDING AND SLOPE AREAS.

FAILURE TO REQUEST INSPECTIONS AND/OR HAVE REMOVABLE EROSION CONTROL DEVICES ON-SITE AT THE APPROPRIATE TIMES SHALL RESULT IN FORFEITURE OF THE CONSTRUCTION SITE CLEANUP DEPOSIT.

13. ALL PLASTIC DRAINAGE PIPE SHALL CONSIST OF PVC OR ABS PLASTIC AND EITHER ASTM 2751, ASTM D1527, ASTM D3034OR ASTM D1785.
14. NO PAINT, PLASTER, CEMENT, SOIL, MORTER OR OTHER RESIDUE SHALL BE ALLOWED TO ENTER STREETS, CURBS, GUTTERS, OR STORM DRAINS. ALL WASTE MATERIALS SHALL BE REMOVED FROM THE SITE. NBMC 17.32.020.
15. CONTRACTOR SHALL, USE THE CITY STANDARD FORM '30-DAY NOTICE OF INTENT TO EXCAVATE' TO, NOTIFY ADJACENT PROPERTY OWNERS BY CERTIFIED MAIL 30 DAYS PRIOR TO STARTING EXCAVATION OR SHORING. CITY STANDARD FORM CAN BE OBTAINED AT: HTTP://WWW.NEWPORTBEACHCA.GOV/HOME/SHOWDOCUMENT?ID=17395. PROOF OF CERTIFIED DELIVERY IS REQUIRED AT THE TIME OF PERMIT ISSUANCE.
16. CAL-OSHA PERMIT IS REQUIRED FOR EXCAVATIONS DEEPER THAN 5' AND FOR SHORING AND/OR UNDERPINNING.

EROSION CONTROL NOTES

1. TEMPORARY EROSION CONTROL PLANS ARE REQUIRED FROM OCTOBER 15 TO MAY 15.
2. EROSION CONTROL DEVICES SHALL BE AVAILABLE ON SITE BETWEEN OCTOBER 15 AND MAY 15.
3. BETWEEN OCTOBER 15 AND MAY 15, EROSION CONTROL MEASURES SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHENEVER THE FIVE-DAY PROBABILITY OF RAIN EXCEEDS 30 PERCENT. DURING THE REMAINDER OF THE YEAR, THAY SHALL BE IN PLACE AT THE END OF THE WORKING DAY WHENEVER THE DAILY RAINFALL PROBABILITY EXCEEDS 50 PERCENT.
4. LANDSCAPING PLANS SHALL BE SUBMITTED FOR APPROVAL, WORK COMPLETED AND A CERTIFICATE OF CONFORMANCE RECEIVED BY THE CITY ENGINEER PRIOR TO CLOSURE OF PERMIT, UNLESS WAIVED BY THE CITY GRADING ENGINEER.
5. TEMPORARY DESILTING BASINS, WHEN REQUIRED, SHALL BE INSTALLED AND MAINTAINED FOR THE DURATION OF THE PROJECT.

EXISTING UTILITIES NOTE

ALL UNDERGROUND UTILITIES OR STRUCTURES REPORTED BY THE OWNER OR OTHERS AND THOSE SHOWN ON THE RECORDS EXAMINED ARE INDICATED WITH THEIR APPROXIMATE LOCATION AND EXTENT.

THE OWNER BY ACCEPTING THESE PLANS OR PROCEEDINGS WITH IMPROVEMENTS PURSUANT THERETO AGREES TO ASSUME LIABILITY AND TO HOLD UNDERSIGNED HARMLESS FOR ANY DAMAGES RESULTING FROM THE EXISTENCE OF UNDERGROUND UTILITIES OR STRUCTURES NOT REPORTED TO THE UNDERSIGNED; NOT INDICATED ON THE PUBLIC RECORDS EXAMINED; LOCATED AT VARIANCE WITH THAT REPORTED OR SHOWN ON RECORDS EXAMINED.

THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITIES OR STRUCTURES SHOWN AND ANY OTHER UTILITIES OR STRUCTURES FOUND AT THE SITE. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE OWNERS OF THE UTILITIES OR STRUCTURES CONCERNED BEFORE STARTING WORK.

DOCUMENTATION

1. AN AS-BUILT GRADING PLAN SHALL BE PREPARED BY THE CIVIL ENGINEER INCLUDING ORIGINAL GROUND SURFACE ELEVATIONS, AS-GRADED ELEVATIONS, LOT DRAINAGE PATTERNS AND LOCATIONS, AND ELEVATIONS OF ALL SURFACE AND SUB-SURFACE DRAINAGE FACILITIES. HE SHALL PROVIDE WRITTEN APPROVAL THAT THE WORK WAS DONE IN ACCORDANCE WITH THE FINAL APPROVED GRADING PLAN AND STATE THE NUMBER OF YARDS OF CUT AND/OR FILL MOVED DURING THE OPERATION.
2. A SOILS GRADING REPORT PREPARED BY THE SOILS ENGINEER, INCLUDING LOCATIONS AND ELEVATION OF FIELD DENSITY TESTS, SUMMARIES OF FIELD AND LABORATORY RESULTS AND OTHER SUBSTANTIATED DATA AND COMMENTS ON ANY CHANGES MADE DURING GRADING AND THEIR EFFECT ON THE RECOMMENDATIONS MADE IN THE SOILS ENGINEERING INVESTIGATION REPORT. HE SHALL PROVIDE WRITTEN APPROVAL AS TO THE ADEQUACY OF THE SITE FOR THE INTENDED USE AND COMPLETION OF WORK IN ACCORDANCE WITH THE NBMC.
3. A GEOLOGIC GRADING REPORT PREPARED BY THE ENGINEERING GEOLOGIST, INCLUDING A FINAL DESCRIPTION OF THE GEOLOGY OF THE SITE, INCLUDING ANY NEW INFORMATION DISCLOSED DURING THE GRADING AND THE EFFECT OF SAME ON RECOMMENDATIONS INCORPORATED IN THE APPROVED GRADING PLAN. HE SHALL PROVIDE WRITTEN APPROVAL AS TO THE ADEQUACY OF THE SITE FOR THE INTENDED USE AS AFFECTED BY GEOLOGIC FACTORS.

PROPERTY CORNER MONUMENTATION

SURVEYOR OR ENGINEER SHALL MONUMENT PROPERTY CORNERS, BEFORE STARTING GRADING, WITH PERMANENT MONUMENTS.

CITY OF NEWPORT BEACH NOTES

1. A PUBLIC WORKS DEPARTMENT ENCROACHMENT PERMIT INSPECTION IS REQUIRED BEFORE THE BUILDING DEPARTMENT PERMIT FINAL CAN BE ISSUED. AT THE TIME OF PUBLIC WORKS DEPARTMENT INSPECTION, IF ANY OF THE EXISTING PUBLIC IMPROVEMENTS SURROUNDING THE SITE IS DAMAGED, NEW CONCRETE SIDEWALK, CURB AND GUTTER, AND ALLEY/STREET PAVEMENT WILL BE REQUIRED. ADDITIONALLY, IF EXISTING UTILITIES INFRASTRUCTURE ARE DEEMED SUBSTANDARD, A NEW 1-INCH WATER SERVICE, WATER METER BOX, SEWER LATERAL AND/OR CLEANOUT WITH BOX AND LID WILL BE REQUIRED. 100% OF THE COST SHALL BE BORNE BY THE PROPERTY OWNER (MUNICIPAL CODES 14.24.020 AND 14.08.030). SAID DETERMINATION AND THE EXTENT OF THE REPAIR WORK SHALL BE MADE AT THE DISCRETION OF THE PUBLIC WORKS INSPECTOR.
2. AN ENCROACHMENT AGREEMENT IS REQUIRED FOR ALL NON-STANDARD IMPROVEMENTS WITHIN THE PUBLIC RIGHT-OF-WAY AND EASEMENTS. ALL NON-STANDARD IMPROVEMENTS SHALL COMPLY WITH CITY COUNCIL POLICY L-6.
3. AN APPROVED CITY OF NEWPORT BEACH ENCROACHMENT PERMIT IS REQUIRED FOR ALL WORK ACTIVITIES WITHIN THE PUBLIC RIGHT-OF-WAY AND EASEMENTS.
4. SURVEYOR OR ENGINEER SHALL PERMANENTLY MONUMENT PROPERTY CORNERS OR OFFSETS BEFORE STARTING GRADING.
5. SURVEYOR TO FILE A CORNER RECORD OR RECORD OF SURVEY WITH THE OFFICE OF THE COUNTY SURVEYOR. EVIDENCE OF FILING SHALL BE SUBMITTED TO BUILDING INSPECTOR PRIOR TO FOUNDATION INSPECTION.
6. ALL WORK RELATED TO DOMESTIC WATER IN THE PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED BY A C-34 LICENSED PIPELINE CONTRACTOR OR AN "A" LICENSED GENERAL ENGINEERING CONTRACTOR.
7. ALL WORK RELATED TO WASTEWATER IN THE PUBLIC RIGHT-OF-WAY SHALL BE PERFORMED BY A C-42 LICENSED SANITATION SEWER CONTRACTOR OR AN "A" LICENSED GENERAL ENGINEERING CONTRACTOR.
8. ISSUANCE OF A BUILDING PERMIT BY THE CITY OF NEWPORT BEACH DOES NOT RELIEVE APPLICANTS OF THE LEGAL REQUIREMENTS TO OBSERVE COVENANTS, CONDITIONS AND RESTRICTIONS WHICH MAY BE RECORDED AGAINST THE PROPERTY OR TO OBTAIN PLANS. YOU SHOULD CONTACT YOUR COMMUNITY ASSOCIATIONS PRIOR TO COMMENCEMENT OF ANY CONSTRUCTION AUTHORIZED BY THIS PERMIT.

DEVELOPMENT STATISTICS

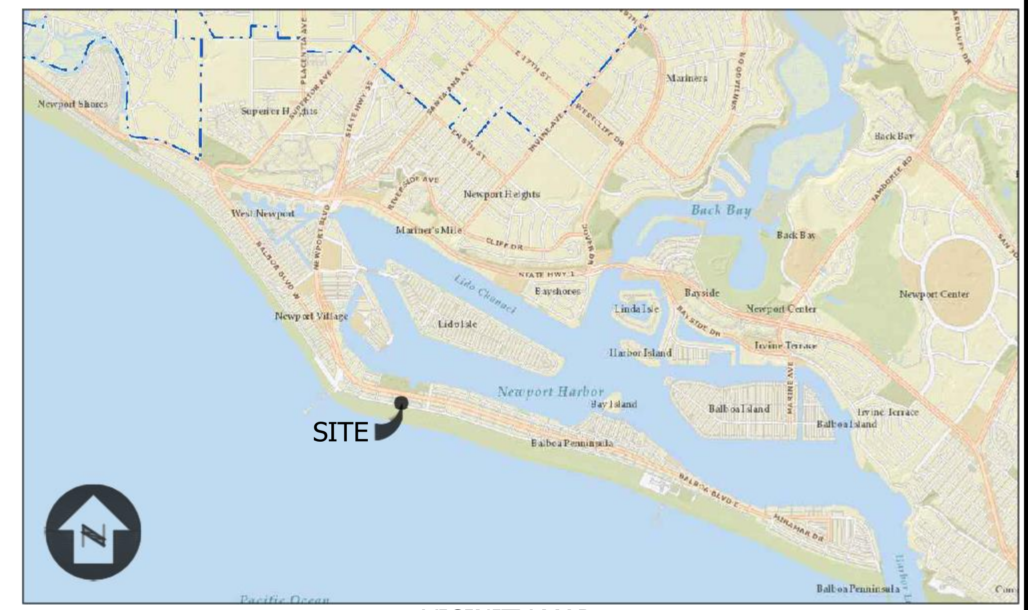
SITE AREA	0.07 AC.	3,072 S.F.
DISTURBED AREA	0.07 AC.	3,042 S.F.
IMPERVIOUS AREA		
PRE-PROJECT	0.07 AC.	3,072 S.F.
NEW OR REPLACEMENT	0.07 AC.	3,072 S.F.
POST-PROJECT	0.07 AC.	3,072 S.F.

CONSTRUCTION NOTES AND QUANTITY ESTIMATE

EARTHWORK	CUT	FILL
EXCAVATION	490 CY	-
EMBANKMENT	-	0 CY
OVEREXCAVATION/RECOMPACTION	420 CY	420 CY
EXPORT	-	490 CY
TOTAL	910 CY	910 CY

No.	Note	Quantity
1	CONSTRUCT CONCRETE HARDSCAPE. SEE DETAIL SHEET C-3.	820 S.F.
2	INSTALL 3" PVC SCH 40 PIPE DRAIN SYSTEM.	20 L.F.
3	INSTALL 4" PVC SCH 40 PIPE DRAIN SYSTEM.	160 L.F. S.F.
4	CONSTRUCT CONCRETE SWALE PER DETAIL SHEET C-3.	200 L.F.
5	DOWNSPOUT TO BE CONNECTED TO STORM DRAIN SYSTEM PER DETAIL SHEET C-3.	4 EA.
6	CONSTRUCT 8" WIDE CONCRETE CHANNEL DRAIN W/ TRAFFIC RATED FRAME AND GRATE W/ 3/8" SLOT OPENINGS, NDS TYPE 833 OR EQUIVALENT PER DETAIL SHEET C-3.	24 L.F.
7	INSTALL DOWNSPOUT FILTER, FLOGARD DOWNSPOUT FILTER MODEL FG-DS4. PER DETAIL SHEET C-3.	7 EA.
8	INSTALL TRENCH DRAIN FILTER. MIN.4' LONG. FLOGARD TRENCH DRAIN FILTER MODEL FG-TD0F3 PER DETAIL ON SHEET C-3.	8 L.F.
9	INSTALL 6" DECK DRAIN NDS TYPE 40 W/ RISER & ADAPTOR OR EQUAL. SE DETAIL ON SHEET C-3.	6 EA.
10	INSTALL 12" SQ. BRASS DECK DRAIN. NDS TYPE 1230B W/ RISER & ADAPTER OR EQUAL. SEE DETAIL ON SHEET C-3.	1 EA.
11	PROPOSED SEWER CLEANOUT W/ TRAFFIC RATED GRATE PER CITY OF NEWPORT BEACH STD. STD-406-L.	1 EA.
12	OUTLET 3" PIPE TO THE BOTTOM OF STAIRS. INVERT PER PLAN.	2 EA.

NOTE: QUANTITIES SHOWN HEREON ARE ESTIMATED FOR PERMIT PURPOSES ONLY.
CONTRACTOR SHALL PERFORM OWN QUANTITY TAKEOFF FOR BIDDING AND OTHER PURPOSES.



VICINITY MAP
NOT TO SCALE

PREPARED FOR:
SMITH 507 LLC
1612 W OCEAN FRONT
NEWPORT BEACH
CA 92663
TEL. (714)305-2861

REVISIONS

BY	DATE	APVD.	DATE

DATE: 8/12/21	H. SCALE: N/A		
SURVEY DATE: 06/06/19	V. SCALE: N/A		
DRN.: A.A.	DWG. NO. C-1		
CHD.: C.R.			
APPD.: C.R.			
JOB NO. 19204	SHEET 1	OF 7	

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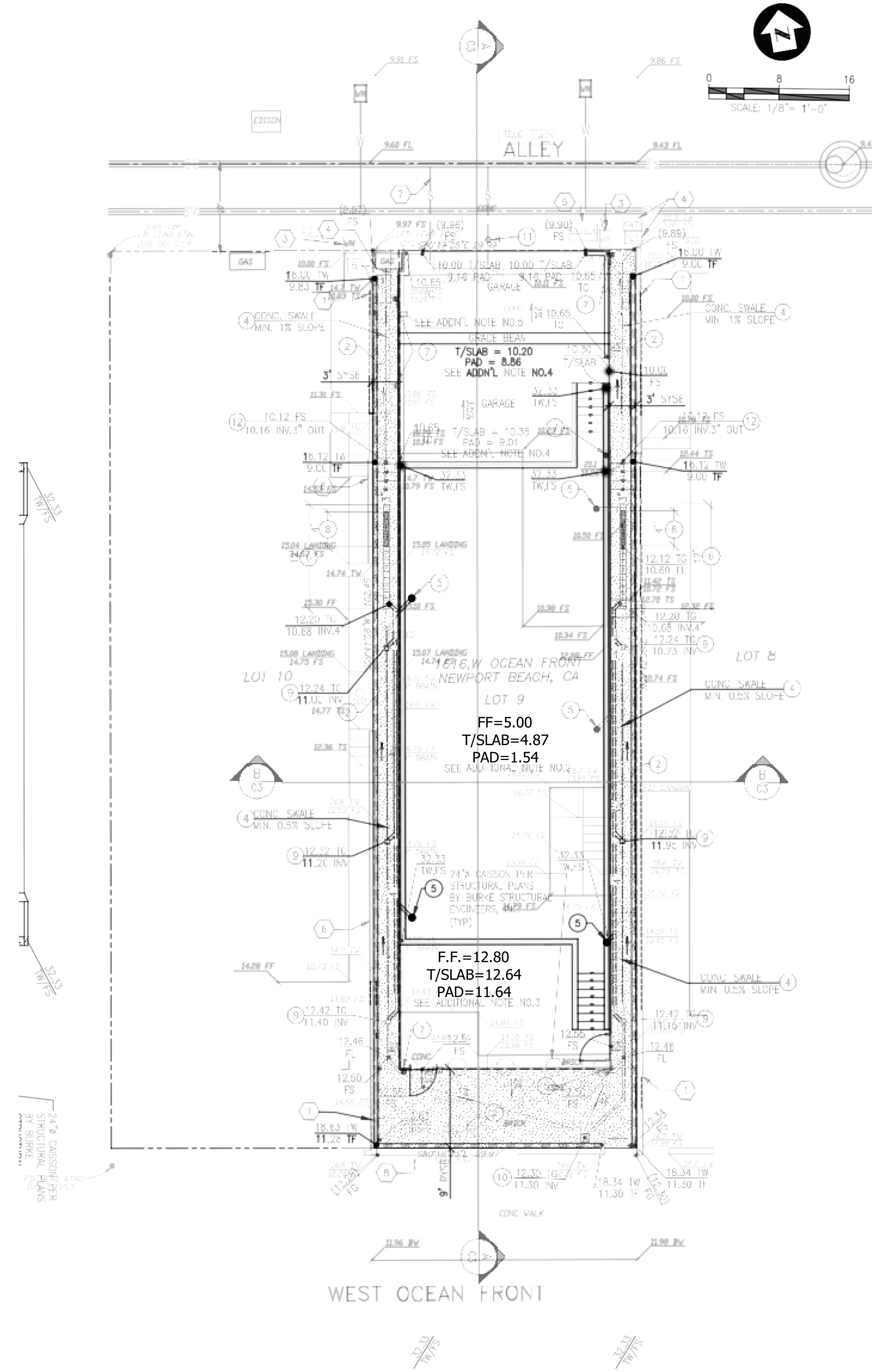

CONSTRUCTION NOTES

1. CONSTRUCT CONCRETE HARDSCAPE. SEE DETAIL SHEET C-3.
2. INSTALL 3" PVC SCH 40 PIPE DRAIN SYSTEM.
3. INSTALL 4" PVC SCH 40 PIPE DRAIN SYSTEM.
4. CONSTRUCT CONCRETE SWALE PER DETAIL SHEET C-3.
5. DOWNSPOUT TO BE CONNECTED TO STORM DRAIN SYSTEM PER DETAIL SHEET C-3.
6. CONSTRUCT 6" WIDE CONCRETE CHANNEL DRAIN W/ TRAFFIC RATED FRAME AND GRATE W/ ⅜" SLOT OPENINGS, NDS TYPE 533 OR EQUIVALENT PER DETAIL SHEET C-3.
7. INSTALL DOWNSPOUT FILTER, FLOGARD DOWNSPOUT FILTER MODEL FG-DS4. PER DETAIL SHEET C-3.
8. INSTALL TRENCH DRAIN FILTER. MIN.4' LONG. FLOGARD TRENCH DRAIN FILTER MODEL FG-TDUF5 PER DETAIL ON SHEET C-3.
9. INSTALL 6" DECK DRAIN NDS TYPE 40 W/ RISER & ADAPTOR OR EQUAL. SE DETAIL ON SHEET C-3.
10. INSTALL 12" SQ. BRASS DECK DRAIN. NDS TYPE 1230B W/ RISER & ADAPTER OR EQUAL. SEE DETAIL ON SHEET C-3.
11. PROPOSED SEWER CLEANOUT W/ TRAFFIC RATED GRATE PER CITY OF NEWPORT BEACH STD. STD-406-L.
12. OUTLET 3" PIPE TO THE BOTTOM OF STAIRS. INVERT PER PLAN.

DISPOSITION NOTES

1. EXISTING WALL TO REMAIN.
2. SAWCUT LINE. JOIN EXISTING.
3. EXISTING WATER METER TO REMAIN, PROTECT IN PLACE.
4. EXISTING UTILITY VAULT TO REMAIN, PROTECT IN PLACE.
5. EXISTING UTILITY VAULT TO REMAIN, UPGRADE WITH TRAFFIC RATED BOX IF NECESSARY PER UTILITY COMPANY STANDARD.
6. REMOVE AND REPLACE A PORTION OF EXISTING WALL IF NECESSARY.
7. EXISTING SEWER LATERAL TO BE ABANDONED AND CAPPED
8. EXISTING WALL TO BE REMOVED.

EASEMENT NOTE

ALL EASEMENTS SHOWN ON THIS TOPOGRAPHIC SURVEY ARE PER A PRELIMINARY TITLE REPORT PREPARED BY CHICAGO TITLE COMPANY, ORDER NO. 58601908503-JFA DATED SEPTEMBER 26, 2019 UNLESS NOTED OTHERWISE.

4. CC&R'S RECORDED IN BOOK 643, PAGE 38 OF DEEDS DO NOT CONTAIN ANY PLOTTABLE EASEMENTS
5. AN EASEMENT FOR UNDERGROUND LINES, CONDUITS INCLUDING ABOVE GROUND APPURTENANT FIXTURES AND INCIDENTAL PURPOSES RECORDED IN BOOK 10615, PAGE 826 O.R.

ADDITIONAL NOTES

1. ALL ROOFS SHALL BE GUTTERED & DOWNSPOUTS CONNECTED TO STORM DRAIN SYSTEM
2. PAD ELEVATIONS ARE BASED ON 30" THICK CONC MAT SLAB OVER 3" PROTECTION SLAB OVER WATERPROOFING OVER 3" WASTE SLAB OVER MIRAFI 140N (DOUBLE LAYER, 18-INCH MIN LAP FOR BOTTOM LAYER, CROSS-LAP 2ND LAYER ON TOP OF FIRST WITH 12-INCH MIN LAP TO PROTECT UNDERDRAIN FOR DEWATERING) OVER 4" OF ¾" CRUSHED AGGREGATE PER FOUNDATION PLAN PREPARED BY BURKE STRUCTURAL ENGINEERS DATED 3-10-2020. CONTRACTOR SHALL VERIFY W/ SOILS ENGINEER AND STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
3. PAD ELEVATIONS ARE BASED ON 8" THICK STRUCTURAL SLAB OVER 15 MIL VAPOR BARRIER OVER MIRAFI 140N (DOUBLE LAYER, 18-INCH MIN LAP FOR BOTTOM LAYER, CROSS-LAP 2ND LAYER ON TOP OF FIRST WITH 12-INCH MIN LAP TO PROTECT UNDERDRAIN FOR DEWATERING) OVER 4" OF ¾" CRUSHED AGGREGATE PER FOUNDATION PLAN PREPARED BY BURKE STRUCTURAL ENGINEERS DATED 3-10-2020. CONTRACTOR SHALL VERIFY W/ SOILS ENGINEER AND STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
4. PAD ELEVATIONS ARE BASED ON 12" THICK STRUCTURAL SLAB OVER 15 MIL VAPOR BARRIER OVER MIRAFI 140N (DOUBLE LAYER, 18-INCH MIN LAP FOR BOTTOM LAYER, CROSS-LAP 2ND LAYER ON TOP OF FIRST WITH 12-INCH MIN LAP TO PROTECT UNDERDRAIN FOR DEWATERING) OVER 4" OF ¾" CRUSHED AGGREGATE PER FOUNDATION PLAN PREPARED BY BURKE STRUCTURAL ENGINEERS DATED 3-10-2020. CONTRACTOR SHALL VERIFY W/ SOILS ENGINEER AND STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
5. PAD ELEVATIONS ARE BASED ON 6" THICK CONCRETE SLAB OVER 15 MIL VAPOR BARRIER OVER MIRAFI 140N (DOUBLE LAYER, 18-INCH MIN LAP FOR BOTTOM LAYER, CROSS-LAP 2ND LAYER ON TOP OF FIRST WITH 12-INCH MIN LAP TO PROTECT UNDERDRAIN FOR DEWATERING) OVER 4" OF ¾" CRUSHED AGGREGATE PER FOUNDATION PLAN PREPARED BY BURKE STRUCTURAL ENGINEERS DATED 3-10-2020. CONTRACTOR SHALL VERIFY W/ SOILS ENGINEER AND STRUCTURAL ENGINEER PRIOR TO CONSTRUCTION.
3. SEE SOIL REPORT FOR ALL OVEREXCAVATION REQUIREMENTS.
4. FOR FOOTING AND FOUNDATION DESIGN, SEE STRUCTURAL PLANS.
5. ALL RECOMMENDATIONS CONTAINED IN THE SOILS REPORT BY G3 SOILWORKS REPORT PROJECT NO. 1-1183 DATED MAY 14, 2021 ARE CONSIDERED PART OF THIS PLAN
6. ALL RETAINING WALLS TO BE CONSTRUCTED UNDER SEPARATE PERMIT.

BENCH MARK

OCS BENCHMARK 1E-124-14
ELEV. = 7.660 NAVD88 DATUM

LEGEND

— 100 —	EXISTING CONTOUR	F.F.	PROPOSED FINISHED FLOOR
—100—	PROPOSED CONTOUR	INV	INVERT OF PIPE
100.00	SPOT ELEVATION	TG	TOP OF GRATE
	PROPOSED CONCRETE PAVING	P.L.	PROPERTY LINE
==4"==	PROPOSED STORM DRAIN	TW	TOP OF WALL
—SUB—	PROP. SUBDRAIN	TF	TOP OF FOOTING
	PROPOSED BEARING/RETAINING WALL	S.Y.S.B	SIDE YARD SETBACK
	EXISTING SCREEN WALL	T.P.	TOP OF PILASTER
	PROPOSED SCREEN WALL	P.A.	PLANTER AREA
	PROPOSED RETAINING WALL	R.Y.S.B.	REAR YARD SETBACK
			GRADING LIMITS
PAD	PROPOSED PAD ELEVATION	H.P.	HIGH POINT
■	DOWNSPOUT	FS	PROPOSED FINISHED SURFACE
FG	PROPOSED FINISHED GROUND	T/SLAB	PROPOSED TOP OF SLAB

NOTICE TO CONTRACTOR:

REQUIRED CERTIFICATIONS / APPROVALS

In addition to any certifications required by the agencies having jurisdiction over this project, the following approvals from the Civil engineer of record are required:

1. Foundation forms for improvements on or abutting property lines is required prior to concrete pour.
2. Location, size, and depth of all drain lines prior to backfill.

DATE	APVD.
DATE	B

REVISION

DATE: 8/12/21	H. SCALE: 1"=8'
SURVEY DATE: 06/06/19	V. SCALE: N/A
DRN.: A.A.	DWG. NO.
CHD.: C.R.	C-2
APPD.: C.R.	
JOB NO. 19204	SHEET 2 OF 7

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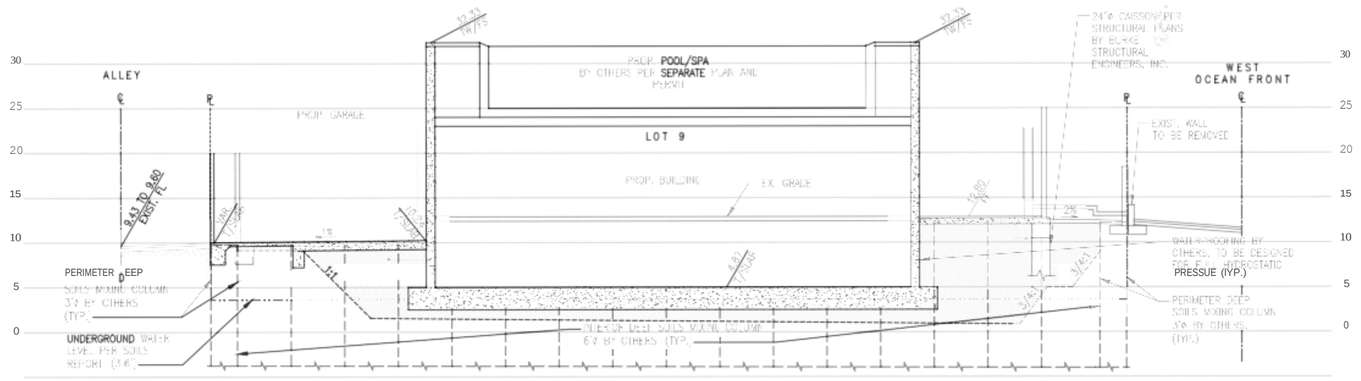
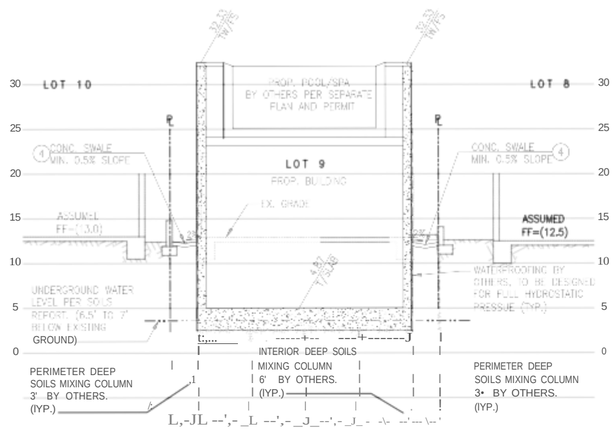
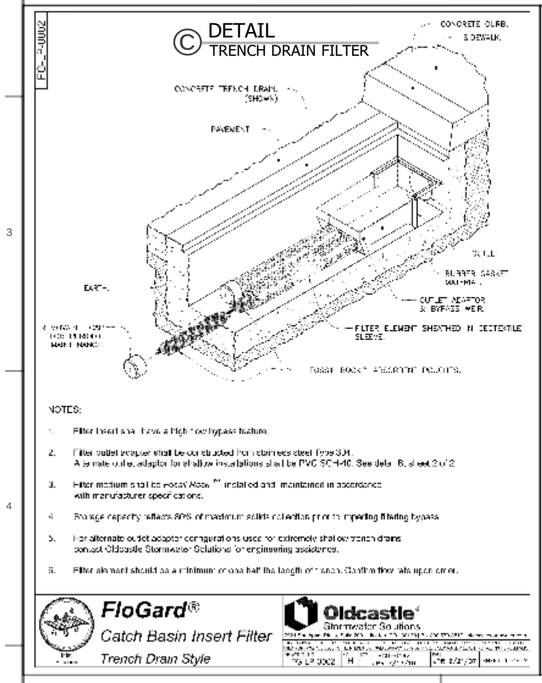






SECTION

@SCALE: 1" = a·-o·

CONSTRUCTION NOTES

(i)--CONSTRUCT CONCRETE HARDSCAPE. SEE DETAIL SHEET C-3.

@- INSTALL 3• PVC SCH 40 PIPE DRAIN SYSTEM.

@-INSTALL 4• PVC SCH 40 PIPE DRAIN SYSTEM.

©- CONSTRUCT CONCRETE SWALE PER DETAIL SHEET C-3.

®-DOWNSPOUT TO BE CONNECTED TO STORM DRAIN SYSTEM PER DETAIL SHEET C-3.

@-CONSTRUCT 8" WIDE CONCRETE CHANNEL DRAIN W/ TRAFFIC RATED FRAME ANO GRATE W/ 1• SLOT OPENINGS, NDS IYPE 833 OR EQUIVALENT PER DETAIL SHEET C-3.

(j)-- INSTALL DOWNSPOUT FILTER, FLOGARD DOWNSPOUT FILTER MODEL FG-DS4. PER DETAIL SHEET C-3.

@- INSTALL TRENCH DRAIN FILTER. MIN.4' LONG. FLOGARO TRENCH DRAIN FILTER MODEL FG-TOOF3 PER DETAIL ON SHEET C-3.

®-INSTAILL 6" DECK DRAIN NDS IYPE 40 W/ RISER & ADAPTOR OR EQUAL. SE DETAIL ON SHEET C-3.

@)--INSTAILL 12• SQ. BRASS DECK DRAIN. NOS IYPE 12308 W/ RISER & ADAPTER OR EQUAL SEE DETAIL ON SHEET C-3.

@-PROPOSED SEWER CLEANOUT W/ TRAFFIC RATED GRATE PER CIIY OF NEWPORT BEACH STO. ST0-406-L.

®- OUTLET 3• PIPE TO THE BOTTOM OF STAIRS. INVERT PER PLAN.

DISPOSITION NOTES

0-- EXISTING WALL TO REMAIN.

0-- SAWCUT LINE, JOIN EXISTING.

0- EXISTING WATER MEIER TO REMAIN, PROTECT IN PLACE.

0- EXISTING UTILIIY VAULT TO REMAIN, PROTECT **IN** PLACE.

0---EXISTING UTILIIY VAULT TO REMAIN, UPGRADE WITH TRAFFIC RATED BOX IF NECESSARY PER UTILIIY COMPANY STANDARD.

©- REMOVE ANO REPLACE A PORTION OF EXISTING WALL **IF** NECESSARY.

0-- EXISTING SEWER LATERAL TO BE ABANDONED ANO CAPPED.

©- EXISTING WALL TO BE REMOVED.

SECTION NOTES:

1. ACTUAL LIMITS OF EXCAVATION TO BE DETERMINED IN THE FIELO BY TIHE SOILS ENGINEER.
2. RETAINING WALLS ARE SHOWN FOR REFERENCE ONLY AND ARE TO BE CONSTRUCTED PER SEPAIRATE PLANS ANO PERMIT.
3. FOR FOOTING ANO FOUNDATION PLANS, SEE STRUCTURAL DRAWINGS.
4. RETAINING WALL BACKFILL SHALL CONFORM TO THE SOILS REPORT AND THE STRUCTURAL DRAWINGS.

DATE	APVD.	DATE	BY	REVISIONS

FC-_P-0002

© DETAIL
TRENCH DRAIN FILTER

NOTES:

1. Filter insert shall have a high flow bypass feature.
2. Filter outlet adapter shall be constructed from stainless steel Type 304. Alternate outlet adapter for shallow installations shall be PVC SCH-40. See detail B, sheet 2 of 2.
3. Filter medium shall be Fossil Rock™ installed and maintained in accordance with manufacturer specifications.
4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.
5. For alternate outlet adapter configurations used for extremely shallow trench drains contact Oldcastle Stormwater Solutions for engineering assistance.
6. Filter element should be a minimum of one half the length of trench. Confirm flow rate upon order.

FloGard®
Catch Basin Insert Filter
Trench Drain Style

Oldcastle
Stormwater Solutions

FG-LP 0002 | H

0 DETAIL
DOWNSPOUT FILTER

FloGard Downspout Filter

Inlet Filtration

Installed in a parking garage

Recessed in an exterior wall

Specifications

The FloGard Downspout Filter is accepted by the *City of Los Angeles* to treat rooftop runoff.

IAPMO R&T

IAPMO CERTIFIED

The FloGard Downspout Filter has been certified by the International Association of Plumbing and Mechanical Officials (IAPMO) for in-line filtration of stormwater runoff on building downspouts. The FloGard Downspout Filter complies with the Uniform Plumbing Code and International Plumbing Code.

Oldcastle Stormwater Solutions

SECTION

@SCALE: 1" 8'-0"

NOTE: DO NOT USE 90' ELLS OR TEES IN DRAINLINE SYSTEM

MAIN DIA.	RISER DIA.
3•	3•
> 3•	4• MIN. (U.N.O.)

DETAIL
TYPICAL DRAIN INLET

NOT TO SCALE

	LANDSCAPE	HARDSCAPE
A*	6" **MIN.**	3.5" MIN.
B	5% MIN.	2% MIN.
C	2% MIN.	1% MIN.

*oTHER VALUES MAY APPLY DEPENDING UPON ARCHITECTURAL DETAILS

0 DETAIL
TYPICAL SIDE YARD SWALE

NOT TO SCALE

0 DOWNSPOUT CONNECTION

NOT TO SCALE

tIQli:
CONTRACTOR SHALL FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS.

0 8" WIDE TRAFFIC RATED FRAME ANO GRATE WITH 3/8" SLOT OPENINGS, NDS IYPE 833 OR EQUIVALENT.

® FORM AND POUR PERIMETER CONCRETE CURB 10• DEEP BY 6" WIDE.

© INSTALL #4 REBAR TOP AND BOTTOM (IYPICAL).

© CONCRETE DRIVEWAY.

© DETAIL
CONCRETE CHANNEL DRAIN

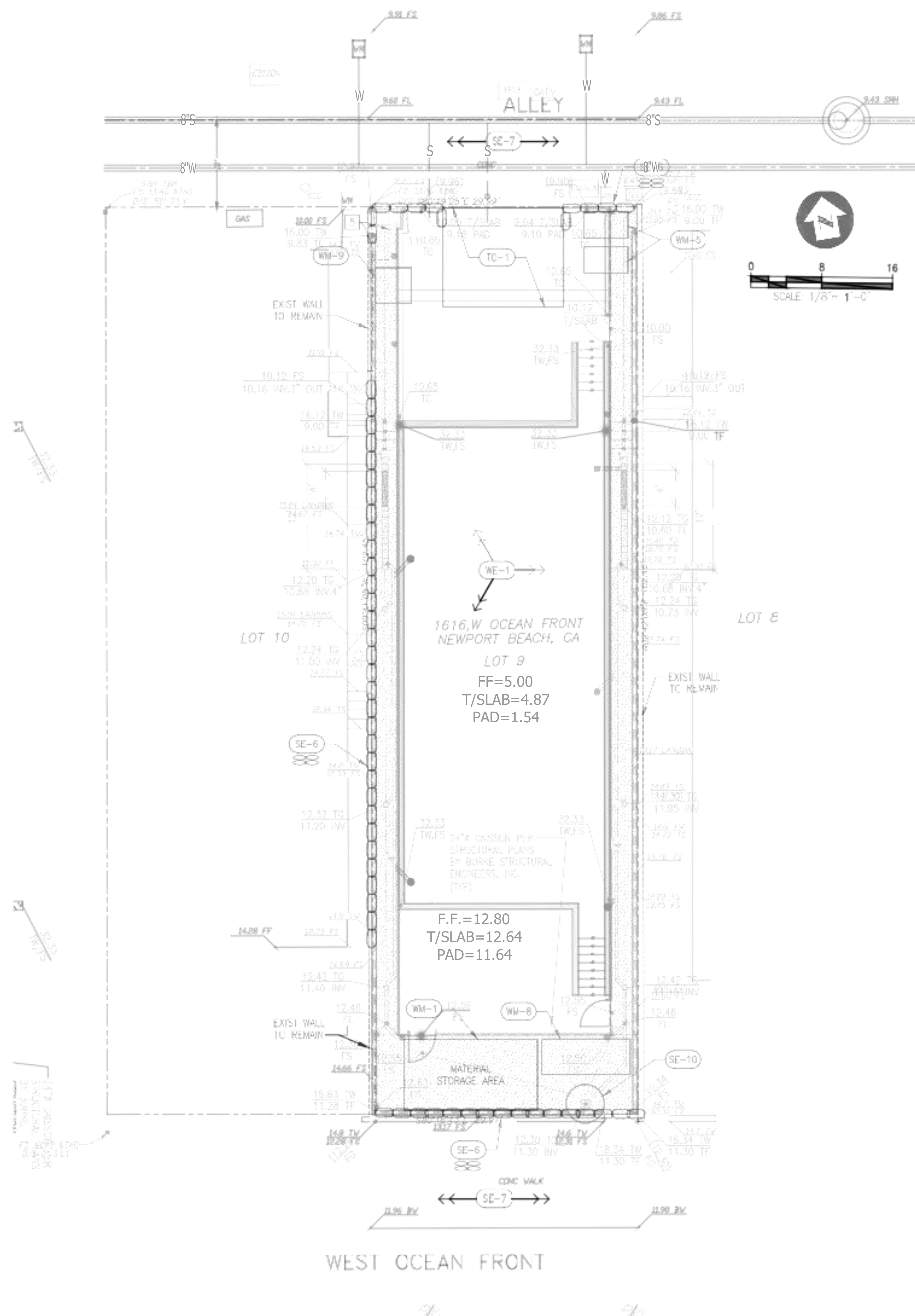
NOTES:
1. THIS DETAIL IS FOR REFERENCE ONLY TO ILLUSTRATE SOILS REPORT REQUIREMENTS. HARDSCAPE DESIGN BY OTHERS.
2. SEE SOILS REPORT FOR OVEREXCAVATION AND SUBGRADE PREPARATION REQUIREMENTS.

		HARDSCAPE
A	MIN. SLAB THICKNESS	4•
B	MIN. AGG. BASE THICKNESS	
C	MIN. REINFORCEMENT (O.C. / E.W.)	#3@18"
D	MAX. SAWCUT OR COLD JT. SPACING	8' SLAB 6' SIDEWALK
E*	THICKENED EDGE DEPTH	
F*	THICKENED EDGE WIDTH	

*REQUIRED WHERE ADJACENT TO LANDSCAPE AREAS.

0 DETAIL
TYPICAL DRIVEWAY / HARDSCAPE SECTION

NOT TO SCALE



EROSION CONTROL BMPs		
EC-1	SCHEDULING	SCHEDULE PREPARED BY CONTRACTOR SHALL BE ON-SITE DURING **CONSTRUCTION.**
TEMPORARY SEDIMENT CONTROL		
SE-1	SILT FENCE	PLACE AS SHOWN ON PLAN
SE-6	GRAVEL BAG BERM	PLACE AS SHOWN ON PLAN
SE-7	STREET SWEEPING AND VACUUMING	STREET SHALL BE SWEPT AND SEDIMENT COLLECTED AND PROPERLY DISPOSED OF ON OR OFF-SITE, ON **A** DAILY BASIS
SE-10	STORM DRAIN INLET PROTECTION	CAP **RISERS,** CUT RISERS ABOVE **GRADE, AND/OR** PROVIDE GRAVEL **BAGS AT INLETS** TO PREVENT **SEDIMENT INTRODUCTION** INTO **THE** AREA DRAIN SYSTEM.
WIND EROSION CONTROL		
WE-1	WIND EROSION CONTROL	WATER OR COVER MATERIAL SHALL BE USED TO ALLEVIATE DUST NUISANCE FROM ANY DISTURBED AREAS DURING CONSTRUCTION.
TRACKING CONTROL		
TC-1	STABILIZED **CONSTRUCTION** EXIT	CONTRACTOR SHALL CONSTRUCT SITE ENTRANCE IF VEHICLES WILL BE ENTERING AND EXITING **THE** SITE.
WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL		
WM-1	MATERIAL USE	MATERIALS FOR **CONSTRUCTION** SHALL BE USED **IN** ACCORDANCE WITH PRODUCT DIRECTIONS.
WM-2	MATERIAL DELIVERY AND STORAGE	**IF** MATERIALS ARE STORED ON **SITE,** THEY SHALL BE STORED **IN** ORIGINAL MARKED CONTAINERS **AND** COVERED FROM RAIN AND WIND.
WM-3	STOCKPILE MANAGEMENT	TEMPORARY SOIL STOCKPILES SHALL BE SURROUNDED BY PERIMETER CONTROLS AS SHOWN ON **THE** PLAN. GEOTEXTILE OR PLASTIC COVERS ARE REQUIRED DURING HIGH WINDS OR RAIN EVENTS
WM-4	SPILL PREVENTION AND CONTROL	AMPLE CLEAN-UP SUPPLIES FOR STORED MATERIALS SHALL BE KEPT ON-SITE. EMPLOYEES SHALL BE EDUCATED ON **THE CLASSIFICATIONS** OF SPILLS AND APPROPRIATE RESPONSES.
WM-5	SOLID WASTE MANAGEMENT	SOLID WASTE FROM **CONSTRUCTION** ACTIVITIES SHALL BE STORED **IN** APPROPRIATE CONTAINERS. FULL CONTAINERS SHALL BE DISPOSED OF PROPERLY.
WM-8	CONCRETE WASTE MANAGEMENT	AN ON-SITE CONCRETE WASHOUT AREA SHALL BE USED. WASTE SHALL BE DISPOSED OF **IN A** MANNER WHICH MEETS **THE REQUIREMENTS** OF **THE** CITY.
WM-9	**SANITARY/SEPTIC** WASTE **MANAGEMENT**	ON-SITE FACILITIES SHALL BE PROVIDED AND MAINTAINED BY **THE** CONTRACTOR FOR **THE** DURATION OF **THE** PROJECT
NON-STORMWATER MANAGEMENT		
NS-1	WATER **CONSERVATION** PRACTICES	MAINTAIN EQUIPMENT TO PREVENT UNINTENDED **NON-STORMWATER** DISCHARGES.
NS-2	DEWATERING OPERATIONS	WATER TO BE PUMPED FROM BASEMENT EXCAVATIONS DURING CONSTRUCTION.
NS-3	PAVING AND GRINDING OPERATIONS	APPLY PERIMETER CONTROLS AND VACUUMING TO PREVENT NON-STORMWATER DISCHARGES.
NS-7	POTABLE WATER / IRRIGATION	EXERCISE CARE DURING CONSTRUCTION TO PREVENT UNINTENDED NON-STORMWATER DISCHARGES.
NS-8	VEHICLE AND EQUIPMENT CLEANING	SHALL NOT BE PERFORMED ON SITE.
NS-9	VEHICLE AND EQUIPMENT FUELING	SHALL NOT BE PERFORMED ON SITE.
NS-10	VEHICLE AND EQUIPMENT MAINTENANCE	SHALL NOT BE PERFORMED ON SITE.
NS-12	CONCRETE CURING	APPLIES TO ALL CONCRETE **CONSTRUCTION.**
NS-13	CONCRETE FINISHING	APPLIES TO ALL CONCRETE **CONSTRUCTION.**

YEAR-ROUND BMP REQUIREMENTS

1. WHERE **APPROPRIATE,** SEDIMENT CONTROL BMPs SHALL BE IMPLEMENTED **AT THE** SITE **PERIMETER, AT** ALL **OPERATIONAL STORM** DRAIN INLETS AND **AT** ALL NON-ACTIVE SLOPES, TO PROVIDE **SUFFICIENT PROTECTION** FROM STORMS.
2. WIND EROSION BMPs (DUST CONTROL) SHALL BE IMPLEMENTED AND MAINTAINED.
3. BMPs TO CONTROL OFF-SITE SEDIMENT TRACKING SHALL BE IMPLEMENTED AND MAINTAINED.
4. APPROPRIATE WASTE MANAGEMENT AND MATERIALS POLLUTION CONTROL BMPs SHALL BE IMPLEMENTED TO PREVENT **THE CONTAMINATION** OF STORM WATER BY WASTES AND **CONSTRUCTION** MATERIALS.
5. APPROPRIATE NON-STORM WATER BMPs SHALL BE IMPLEMENTED TO PREVENT **THE CONTAMINATION** OF STORM WATER FROM CONSTRUCTION ACTIVITIES.
6. ADEQUATE PHYSICAL OR VEGETATION EROSION CONTROL BMPs **(TEMPORARY** OR **PERMANENT)** SHALL BE INSTALLED AND ESTABLISHED AS SOON AS PRACTICAL FOR **ALL COMPLETED SLOPES OR SLOPES IN** NON-ACTIVE AREAS. THESE BMPs MUST BE MAINTAINED THROUGHOUT **THE** YEAR. **IF A** SELECTED BMP **FAILS, IT** MUST BE REPAIRED AND **IMPROVED,** OR REPLACED WITH AN ACCEPTABLE ALTERNATE AS SOON AS **IT IS** SAFE TO DO SO. **THE FAILURE OF A** BMP MAY INDICATE THAT **THE BMP,** AS **INSTALLED,** WAS NOT ADEQUATE FOR **THE CIRCUMSTANCES IN** WHICH **IT** WAS USED. REPAIRS OR **REPLACEMENTS MUST RESULT IN A** MORE ROBUST BMP, OR ADDITIONAL BMPs SHOULD BE INSTALLED TO PROVIDE ADEQUATE PROTECTION.
7. **A** DISTURBED AREA THAT **IS** NOT COMPLETED, BY THAT **IS** NOT BEING ACTIVELY GRADED (NON-ACTIVE AREA), SHALL BE FULLY PROTECTED FROM EROSION WITH TEMPORARY OR PERMANENT BMPs (EROSION AND SEDIMENT **CONTROL). THE** ABILITY TO DEPLOY STANDBY BMP MATERIALS **IS** NOT SUFFICIENT FOR THESE AREAS. **EROSION AND** SEDIMENT CONTROL BMPs MUST ACTUALLY BE DEPLOYED. THIS INCLUDES ALL BUILDING PADS, UNFINISHED ROADS AND SLOPES.
8. SUFFICIENT MATERIALS NEEDED TO INSTALL STANDBY EROSION AND SEDIMENT CONTROL BMPs NECESSARY TO COMPLETELY PROTECT **THE** EXPOSED PORTIONS OF **THE** SITE FROM EROSION AND TO PREVENT SEDIMENT DISCHARGES SHALL BE STORED ON-SITE. AREAS THAT HAVE ALREADY BEEN PROTECTED FROM EROSION USING PERMANENT PHYSICAL STABILIZATION OR ESTABLISHED VEGETATION STABILIZATION BMPs ARE NOT CONSIDERED TO BE "EXPOSED" FOR PURPOSES OF THIS REQUIREMENT.
9. THERE SHALL BE **A** "WEATHER TRIGGERED" ACTION PLAN AND **THE** ABILITY TO DEPLOY STANDBY SEDIMENT CONTROL BMPs AS NEEDED TO COMPLETELY PROTECT **THE** EXPOSED PORTIONS OF **THE** SITE WITHIN 48 HOURS OF **A** PREDICTED STORM EVENT (A PREDICTED STORM **IS** DEFINED AS **A** FORECASTED, 50% CHANCE OF RAIN).
10. **THE** AMOUNT OF EXPOSED SOIL ALLOWED **AT** ONE TIME SHALL NOT EXCEED THAT WHICH CAN BE ADEQUATELY PROTECTED BY DEPLOYING STANDBY EROSION CONTROL AND SEDIMENT CONTROL BMPs PRIOR TO **A** PREDICTED RAINSTORM.

NOTE

THE LOCATION AND TYPE OF EROSION AND SEDIMENT CONTROL MEASURES TO BE USED WILL CHANGE DURING **THE** COURSE OF **CONSTRUCTION. THE** CONTRACTOR SHALL IMPLEMENT **THE** CONTROLS NECESSARY TO PREVENT **NON-STORMWATER, SEDIMENT,** AND **CONTAMINATED RUNOFF DISCHARGES FROM THE** SITE **AT** ALL TIMES.

LEGEND

(XX-X) BMP DESIGNATION IN CALIFORNIA STORMWATER BMP HANDBOOK – CONSTRUCTION, LATEST EDITION, BY THE CALIFORNIA STORMWATER QUALITY ASSOCIATION.

GRAVEL BAG BERM (SE-6)

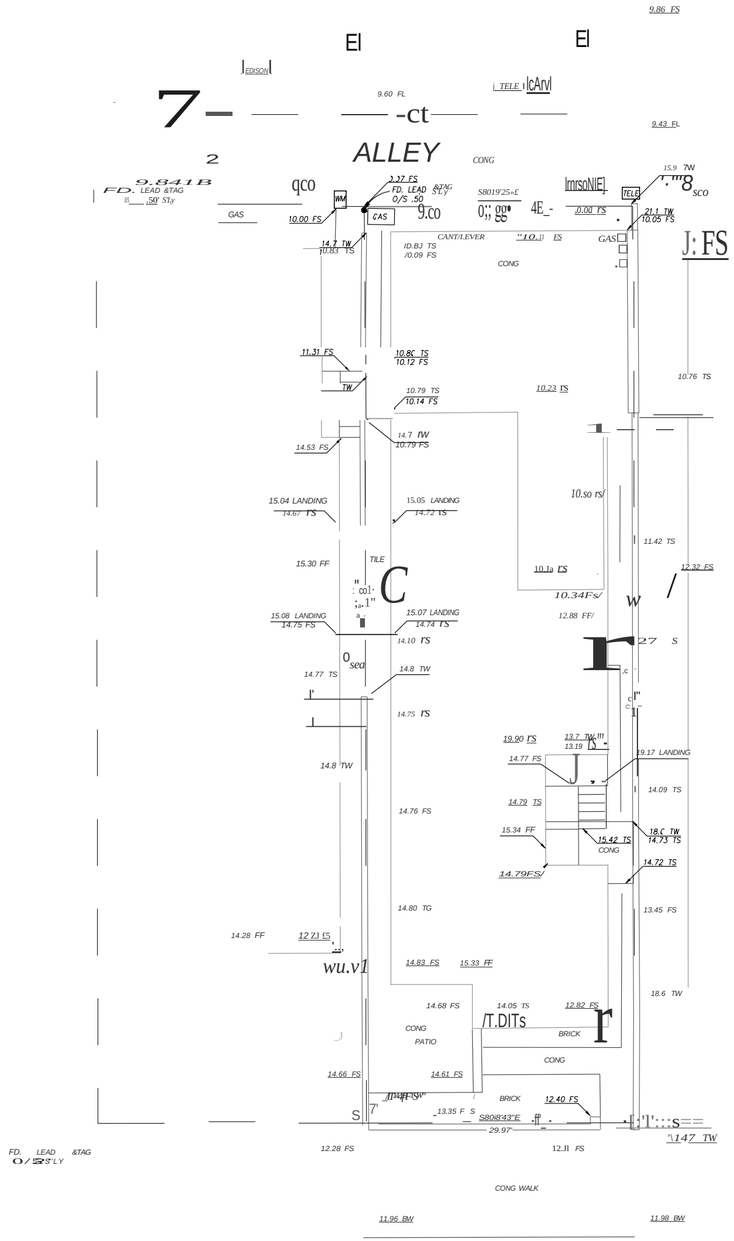
GRAVEL BAG ARRANGEMENT

INLET PROTECTION (SE-1)

FLOW ARROWS

BY	DATE	APVD.	DATE

REVISIONS



WEST OCEAN FRONT

1 = 0'

LEGEND

TC = TOP CURB
FL = FLOW LINE
FS = FINISH SURFACE
TS = TOP STEP
EG = EXISTING GROUND
TW = TOP WALL
TP = TOP PLANTER
TOP = TOP SLOPE
TOE = TOE SLOPE
FF = FINISH FLOOR
GFF = GARAGE FINISH FLOOR
TOR = TOP ROOF
BW = BACK WALK
SEW = SEWER CLEANOUT
PP = POWER POLE
WV= WATER VALVE
WM = WATER METER
TBM = TEMPORARY BENCHMARK
S.F.N. = SEARCHED FOUND NOTHING
(E_ = CENTERLINE
ff'_ = PROPERTY LINE

PROFESSIONAL LAND SURVEYOR
No. 6902
EXP. 6-30-21
STATE OF CALIFORNIA

EASEMENT NOTE:
THE PLAT FOR THIS SURVEY WAS PREPARED WITHOUT A TITLE REPORT. UNPLOTTED EASEMENTS MAY EXIST ON THE SUBJECT PROPERTY.

BOUNDARY NOTE:
THIS IS NOT A BOUNDARY SURVEY. THE TOPOGRAPHIC FEATURES AS SHOWN ON THIS MAP MAY BE ADJUSTED RELATIVE TO THE PLAT UPON COMPLETION OF A BOUNDARY SURVEY.

dewatering.

GEOTECHNICAL CONSIDERATIONS

The major geotechnical factors that should 'Je considered during project design include the following:

1. Presence of relatively loose sands occurring in the shallow subsurface and saturated sands / groundwater at general depths of 6-9± feet below ground surface - site dewatering will likely ::ie required.
2. Potential soil disturb:m:::;e resulting from the demolition of the existing resiC:erce and ancillary elements.
3. Static settlement du8 lo foundation / improvement loading and dynamic settlement resulting from earthquake-induced liquefactkln and shallow dry sand settlement.
4. Required excavation to faciiitate subterranean level construction proximal to cdjacent property lines and Je ov, existing groundwa1er levels.
5. High ground accelerations / seismic shaking may be experienced at the site during its design life - therefore. the pro Josed structures should be designeC and constructed lo the prevailing standards and seismic design requirements.
6. The site is located near "presumed active" strands of the Newport-Inglewood Fault Zone and is understood to be within a Fault Hazard Management Zone designated by the City of Newport Beach. Therefore, the potential for rupture-related ground deformation (uplift, subsidence, translation) and;'or crac{ing J displacement cannot be ruled out for the site I vicinity.
7. Corrosion potential due to the local en\'ironment I coastal setting.
8. Engineering geologic considerations including the potential for shallow groundwate- and coastal flooding.
9. Soil exposure issues related to control of external influences on the structure - including water I moisture ,, vapor, vegetation (t:m:lscaping), soil chemistry (i.e. sulfate / pH issues), exposure to rain, weather, and coastal environment.

RECOMMENDATIONS

General

Based on the findings obtained during our fie'd 8Xploration phase. results of laboratory testing, and our understanding of the currently proposed new residential structure, it is our opinion that the proposed construction is feasible from a geotechnical standpoint, provided tha: the recommendations included herein and City of Newport Beach grading requirerienits are incorporated in the design and implemented during construction.

Secant Piles f Deep Soil Mixing and Site Dewatering

The major geotechnical earthwork challenges irom a constructability standpoint are the excavation, shoring, and site dewatering aspects for the planned subterranean level when c:nsider.ng off-site property constraints. To facilitate planned excavations for the subterranean level of construction as well as minimize site dewatering efforts and potential adverse settlement! subsidence effects to off-site development, a secant pile/ dsep soil mixing (DSM) program has been recommended. This secant pile / CSM program will include reinforced shoring system along property lines and provide in-situ ground improvement to mitigate potential adverse effects due to soil liquefaction. With regards lo temporary site dewatering, the secan: pile/ JSMprogram is also in1ended to limit t cut off horizontal groundwater flow from offsite, reduce the pemieability of the underlying sands on/below the site, and limit the volumetric rate of vertical groundwater seepage that may develop during below grade excavations and construction - however, local imperfections in the cement treatment will c::in::luct groundwa1er seepage and some level of dewatering should be anticipated.

A general description of the secant pile / DSM program is provided in the Project Description sec:ion of t .is report with reference to plans and sJp:iorting documents by Advanced Geosolutions, Inc. (Reference No. 7). Recommendations for site dewalering are presen1ed under separate cover as part of our forthcoming Technical Memorandum (Hydrogeologic Evaluation Findings and Dewatering Plan Recommendations) and supplemental dewatering plan by Griffin Dewatering as part of the Dewatering Plan submittal for the project.

Pre-Construction Documentation I Vibration Moni1oting / Survey Monitoring

The planned construction is to include heavy equipment operations; drilling I deep soil mixing, shoring ins:allation along property line; and other related activities with thci potential to generate significant noise, ground vibration, and other effects whicl- may be perceived as potentially adverse. In order to mitigate potential issues related to noise, vibration, shoring inst311ation, etc., a monitoring and mitigation program should be developed and implemented in advance of and during the planned construction activities. As a minimum, the monitoring and mitigation program should include the following components:

- Pre-Construction Documentation - The site and neighboring properties (interior and exterior portions) should be photo-documented in advance of the planned construction to provide a baseline for pre-construction condi1ions and for comparison purposes during and post-construc:ion. G3 can provide these services under a sei::arate cover.
- Pre-Construction Noise/ Vibration Monioring - Noise and vibration monitoring should be performed in advance of the planned construc:ion to establish normal levels of bac:<ground noise I vibration. These background levels should be documented and "safe" thresholds should be established for in-construction noise and vibration monitoring. G3 can provide these services and additional criteria under separate cover.
- In-Construction Noise I Vibration Monitoring - Noise and vibrations should be monitored during construction and regulated in accordance with established "safe" thresholds for residential constrLction. A minimum three monitoring stations (two stationary. one floating) should be established duri1g construction to provide adequate ccverage near adjacent pro;erties and ens.Jre that vibration levels do not exceed established thresholds. G3 can provide these services and additional criteria under separate cover.
- Survey Monitoring - The planned secant pile shoring system should be monitored for deflection I movement via survey of dedicated benchmarks established a: the regular intervals along property line. Baseline readings should be established prior t:i the stc1rt of any excavation work and surveyed at regular intervals following. For planning purposes, weekly surveys shouk! be conducted by a licensed I qualified surveyor to ensure that the pile deflections do rot exceed estc1blished regulatory thresholds (i.e., not to exceed ½-inch). Additional crite•ia for this work can be provided under separate cover.

Grading

In general, initial earthwork ! grading would generally be limited to demolition / re11ovcl of the existing residence and improvements and preparation of the existing site surface to provide support for the DSM equipment. Exc1o.vation 'or planned subterranean construction is planned following the installation of secan1 piles and DSM ground improvement program, with temporary access ramp cut along the northern 3ide of the subterranean level to facilitate access. Remaining grading would generally be limited to foundation excavation observations, retcining wall and utility line backfill placement and compaction, and precise grading for drainagci.

Presented below are general grading recommendations relative to site clearing, preparation, excavation, etc. which should be included as part of grading operations, as appropriate.

Site Clearing and Preparation

a) Site preparation and grading should be made under the observation of the Project Geotechnical Consul1ant or their representative.
b) Proper measures should be implemented during the performance of remedial I pr9cise grading work to prctect the ·Nork site, particularly excavated areas, from flooding, ponding and inundation due to poor or improper temporary surface drainage. During periods of impending inclement weather, temporary surfaces should ?e made to adequately direct surface drainage, from all sources, away from and off the work site and to provide adequate pumps and sumps to handle any flow into the excavations.
c) Prior to the start of :he required earthwork and grading, all vegetation, surface trash, debris and other deleterious materials should be removed from areas of planned grading and wasted away from the site. Vegetation removal should include root,b1;lls and attendant root systems.
d) Utility laterals/ stub outs should also be located prior to grading and flagged.
e) Any pipelines or conduits encountered within the zone of planned development chat are designated for abandonment should be removed from the construction area and ends cut and plugged accord·n to the applicable Code requirements but not less than 10 feet outside the perimeter of the proposed construction area, or as property line considerations dic1ate. Non-reinforced concrete or clay pipes may be crushed in-place and incorporated in the fill.
f) Alternately, deep hollow lines may be left in place, provi.je j they are filled with concrete. No filled line should be permitted closer than 2 feet from the bottom of footings.
g) Local ordinances relative lo abandonment of Lnde1s1round utilities, if more restrictive, will supersede the above minimum requirements.

Excavation Procedures

Temporary excavations in site soils 4 feet or deeper 3hould be shored or sloped in accordance with Cal OSHA requirements. Special construction techniques, such as slot cutting, may be utilized if excavations are greater than 4 feet vertical and site constraints preclude use of temporary slope cuts.

For subterranean level excavations made within the soi'crete nass, excavation slopes may be made at a 3:4:1 (H:V) gradient.

Excavations located along property lines and adJacent to the reinforced secant shoring systems may be made near vertical. Care should be taken when excavating along the secant wall to prevent the peeling of soilcrete soil layers - grinding of the exposed excavation face may be preferable.

A representative of this firm should be present on-site curing excavations to verify acceptability of temporary slopes. Acceptability will be dependen1t upon the soil conditions encountered, excavation depths, construction procedures, and schedule.

During site excavation operations and construction, the secant walls should be periodically survey monitored to •terify acceptability of the shoring system and enable our office to evaluate need for additional recommendations, as appropriate.

Testing and Observations

Site preparation, grading, compaction, and backfill operations si-ould be performed under the observation and testing of the Project Geotechnical Consultant. As appropriate, an adequate number of field cests should be performed to verify compliance with recommendations presented in this report and loC31 ordinances.

If it is determined during grading that site soils require over-excavation to greater depths for proper structural support, this additional work should be performed in accordance with the recommendations of the Project Geotechnical Consultant.

Fill materials should be compacted to the minimum 90 percent relative compaction based on the laboratory maximum density determined in accordance with ASTM: D1557.

Secant Pile and Deep Soil Mixing - Quality Assurance I Quality Control

A program of Quality Assurance I Qua ity Control (QA/QC) for the planned secant pile and deep soil mixing program should !:le established by the project's Ground Improvement Design-BLild Contractor (Advanced Geosolutions, Inc.). G3 can provide additional input and collaboration as needed under separate cover to assist the ground improvement contractor in devebping and implementing appropriate QA/QC protocols prior to and during construction. G3 can also provide third-party testing services and observations / testing during construction to appropriately document the subJec1 work and provide input I additional recommendations as needed. It is the responsibility of the contractor pe iorming the work to ensure that work is pertormed in accordance with the project plans / specifications and the intent of the recommendations provide:! herein and in our forthcoming Technical Memorandum which will be submitted as part of the Dewatering Plan for the project.

Foundation Recommendations

General

Presented below are preliminary recommendations for the construction of mat slab foundatkln systems for residence support and alternative shallow conventional !ootings for che al grade level of construction when s1..pport into and on soilcrete.

Mat Foundation Design

The proposed residence may t,e supported on mat foundation bearing on approved soilcrete A mat foundation distributes structural load across the structure footprint, resulting in more uniform applied pressures to the bearing stratum. The contact pressure distribution beneath the mat is a function of foundation rigicity and the type of bearing material.

The following geotechnical criteria may be used in the design of mat foundation system founded on the DSM mix for support of the planned residential structure:

Allowable 6earing Pressure (1)	=	3,000 psf
Coefficient of Sub-grade Reaction	=	100 pcl
Mat thickness	=	18 inches (minimum)
Passive Soil Press.Jre (2)	=	300 psf/ft.
Friction Coefficient	=	0.3 (ultimate)

(1) Bearing pressure in shear only for mat foundation supported on soilcrete, and may be increased by one-third to resist transient loads such as wind or seismic.

(2) Passive soil pressure value is for level bedrock grades adjacent to foundatirn, with a maximum •a'ue not to exceed 2,000 psL

(b) The structural details of the mat foundation such as thickness, reinforcements, concrete sl--engih, etc. should be established by the Project Structural Engineer,

considering the loading ai1d service conditions. The mat should be adequately reinforced based on structural design considerations and/or Code requi-ements.

(c) Foundation excav,itions should be observed and approved by the Project Geologist and Geotechnical Engineer prior to the placement of reinforcement or concrete.

(d) The mat foundation should be designed to resist both temporary hydrostco:ic conditions which may develop during construction and post-cnstrlctkln hydrostatic conditions which may develop over the project's intended design life, considering both temporary in-construction and permanent post-cnsiriLcikln foundation loading and hydrostatic uplift pressures.

(e) The mat foundatkln should be appropriately moisture I water-proofed, as recommended hereinafter 1Refer to forthcoming Technical MemorardLm - Hydrogeologic Evaluation Findings and Dewatering Plan Recommendations for additional information regarding proposed shallow dewatering system under slab and related subgrade preparation).

(f) Pad subgrade is to be overlain by 4-inch-thick layer of ¾-inch crushe::l aggregate, in turn; overlain by Mirafi 140N (double-layer; second layer cross.tapped reative to first; 18-inch min, lapping for all fabric).

(g) A 3-inch-thick waste slab (fc = 4,500 psi min., w:c = 0.45, Xypex) is to be poured on top of 4-inch thick gravel layer and Mirafi 140N to provide flat I slTKJoth surface for waterproofing installation.

(h) An additional 3-inch protection slab (f'c = 4,500 psi min., w:c = 0.45, Xypex) is to be poured on top of waterproofing once installation is complete to protect waterproofing during rebar installation and mat slab pour.

(i) rvlat slab (fc = 5.000 psi min., w:c = 0.4, Xypex, per Project Structural Engi1eer) to be poured directly on top of protection slab.

Conventional Footing Desgr Criteria

Presented below are preli11inary recommendations for 1he construction of shallow conventional footings for the at grade level of construction when supported on approved soilcrete mix.

Allowable Bearing Pressure 11)	=	3,000 psi.
Minimum Footing Depth (2)	=	18 inches
Minimum Footing Width	=	Per 2019 CBC
Passive Soil Pressure (3)	=	300 psf/ft., subject to a maximum of 2.000 psi.
Friction Coefficient	=	0.30 (ultimate)

Min mum Footing Reinforcement — For continuous footings, m n. four No. 4 bars, two at top and two at bottom.

(1) Allowable bearing pressures may bci increased by one-third for short-term loading due to wind or seismic forces.

(2) Fooling depth is below lowest adjacent soil grade. Footings should be deepened, as necessary, to depth equivalent to existing adjacent foundations.

(3) Passive soil pressure value is for level soil conditions adjacent to footings.

General Foundation Remarks

(i) Footin;i embedment depths should be maintained throughout the life of the structure, and not compromised via erosion softening, digging, landscaping, etc.

(ii) Where foundations encroach closer than five (5) feet horizontally from the flow line of drainage swales or percolation features, the footings edges should be deepened sufficiently lo maintain the required embedment depth below the adj<0centflow line.

(iii) Foundation details such as concrete strength, reinforcements, thickness. etc. should be established by the Project Structural Enf,ineer, considering the loading conditions. The recommended foundation embedment, thickness and reinforcements are minimum requirements and should be established by the Project Structural Engineer. More restrictive criteria based on structural design considerations or Code requirements shall QOiier,,.

(i,;) Foundation excavations should be observed and approved by the Project Geotechnical Engineer prior to the placement of reinforcement or concrete. Forming of footing excavations may be required. Excavations should be free of slough and debris and thoroughly moisture conditio1ed prior to placing concrete.

(v) Excc1vated material from fooling and utility trenches should not be placed in slab-0.1-grade areas unless properly compa.::ted and tested

(vi) Isolated pad footings should be structurally tied in at least two orthogonal directions.

(vii) Footin;is should be doweled to the existing floor slab with No. 4 bars at 18 inches on center.

(viii:, Floor slab-0n-grade should be underlain by a moisture vapor retarder, as recommended hereinafter, ta mitigate moisture I water vapor intrusion into the structure.

Pier/ Caisson Design Criteria

For at-grade construction transitioning over basement le•tel retaining wall backfill, drilled and cast-in place concrete piers with floor slab structurally supported by grade beam system may be used, when designed and constructed as recommended below:

Allowable End Bearing Pressure	3,000 psi;
Embedment Depth("')	10 feel below ground surface and bearing on 1 into soilcrete:
Pier Diameter	2 feet (minimum);
Minimum Pier Spacing	3 diameters center to center; and
Passive Pressure	300 psf/fi into soilcrete.

General guidelines for pier/ caisson instcllation are provided below:

- Excavations should be drilled at design locations within the tolerances for lateral deviation and ";plumb" condition specified by the Project Structural Engineer.
- The excavations should be constructed using proper drilling equipment with suffcient power to advance the holes to the required design tip elevation
- Potential caving and hole instability should be anticipated within the weathered zone, and therefore temporary casing may be necessary to control cavi·ng or instab lity of crill holes within this zone. If temporary casing is used, it should be removed in stages as the concrete is being ;;illaced. During concreting and casing removal, a minimurr .5 feet of cas:ng should be maintained below the concrete surface at all times.
- Pier excavations should be thoroughly cleaned of loose soils and cuttings prior to the placement of reinforcements and concrete
- Excavations should be observed and approved by the Project Geotechnical Engineer prior to placing reinfo·cing steel and concrete
- Excavations should be filled with concrete on the same day that they are drilled. Concrete should be poured using the Tremie method, to prevent aggregate segregation.
- All concrete should be Type V Portland Cement, 4500 psi, 0.45 water/cement ratiJ.
- We recommend that the p.er3 / piles be reinforced for the entire length. The pier reinforcement and concrete pl:icement procedures should be in accordance with ACI and other applicable codes as well as the requirements of governing jurisdictions and should be established by t1e Project Structural Engineer.
- Pier / caisson installation specifications should be reviewed by the Project Geolechnical Engineer.

Foundation details such as concrete strength, reinforcements, etc. should be established by the Project Structural Engineer. More restrictive criteria based on st-uctural design considerations or Code requirements sha1 govern.

Settlement

Some structure movement should be expected both during and following construction, even when supported on engineered compacted fill, due to various factors including, but not limited to:

- Sequence of foundation and slab loading during construction;
- Variation in structural loads along foundation elements;
- Variation in underlying soil types with different compressibility indices and subsurface soil profi:e, and associated primary and long-term secondary consolidation settlements; acd
- Moisture changes and groundwater due to climatic and non-climatic influences following constr,.mtion.

It should also be recognized that given residential construction tolerances, concrete floor slabs will net be cast perfectly level, and it has been our experience that floors slab elevations may vary by as much as an inch or more.

For design purposes and considering the above factors, total settlements for new foundations designed and constructed in accordance with the above criteria and supporting loads not exceeding the typical loadings for residential construction are not expected to exceed 1-inch. Potential differential se1tlements for foundations/ slabs are no: expected to exceed 1/2 inches across a distance of 30 feel.

Retaining Wall Criteria

The design earth pressures for retaining wall previously recommended by American Geotechnical in Reference No. 4 may be conservatively reiained for use in the design of 1he planned ret.aining walls for the basement level construction. As indicated in Reference No. 4, subterranean retaining walls and associated waterpr::ofing installations should be designed to accommodate full hydrostatic pressures and related conditions which may develop over 1he project's design life (see also Waterproofing - Subterranean Level).

Retaining Wall Backdmnage / Waterproofing

Retaining walls should be adequately waterproofed and incorporate a wall bac drainage system during construction to relieve potential hydrostatic pressure bJildup behind walls. Preiiminary recommendations for retaining wall backdrainage a-e presented in the Site Drainage I Wall Backdrainage section of this report.

Wall Backfill

Backfill materials behind walls should consist of predominantly granular, free draining ma1erial, and compacted to at least 90 percent relative compaction and near optimum moisture con1ents. For planning purposes, crushed miscellaneous base is recommended for subter-anean le•tel retaining wall backfill. However, we reserve the right to modify our rec:ommendations, as appropriate.

Wall Backdrainage

Presented below are preliminar/ recommendations / considerations for wall backdrainage. Detailed recommendations specific to the proposed development will be provided by our office, in coordination with the Pro_ect Civil Engineer, as the project evolves and during subsequent plan review phases, ar.d these recommendations should be incorporated into the final project plans and specifications.

Subterranean walls should include waterproofing and a drainage blanket behind the walls to provide a capillary break, where appropriate. As a minimum, this drainage blanket should consist of Miradrain 6200, applied fabric-side against soil.

Wall drains are to be hydraulically isolated, along with their outlet lines from surface drains.

Seismic Design Considerations

The site, as is all of Southerr California, is withi.1 a zone of seismic activity. Strong ground motion from an earthquake generated along active faults should therefore be anticipated at this site. The proposed residerice should be designed and constructed to the prevailing standards regarding seismic design. Seismic design should be based on current and apjicable CBC requirements, as appropriate. Seismic design parameters based on ASCE 7-16 are included in Appendix C.

Concrete Slab and Exterior Flatwork

The concrete slab design and construction details should be established by the Project Design Engineer. From a geotechnical standpoint, the minimum criteria for slab-on grade are shown below:

a) Floor Slabs

Concrete floor slabs should be 6 inches thick (minimum) and should be reinforced with No. 4 bars at 12 inches on center, each way at mid height, and should be structurally tied to the footings. In order to minimize migration of moisture up the concrete slab from soil sub-grade and damage to floor cc.verings, a moisture batTier I water vapor retarder system should be placed beneach floor slc1bs constructed at grade as recommended hereinafter.

b) Exterior Flati.-ork

Sidewalks, walkways and patio slabs should be 4 inches thick (minimum) and should be

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reinforced with No. 3 bars at 18 inches on center, each way at mid height.

o) Slab Sub-grade Com::,a:tion and Pre-saturation

Prior to concrete placement, the prepared s::,il sub-grade should be moisture conditioned to and maintained at c1b::iut 1 to 3 percentage points wet of optimum moisture contents to a depth of 12 inches and exhibit at least 90 percent relative compaction as determined by ASTM: D1557 or as otherwise specifically recommended by the Project Geotechnical Consultant of record based en actual conditions.

d) General Concrete Remarks

- To minimize slab curling and other related adverse effects, a low shrinkage .1 low slump concrete (concrete mix with a minimum 4,500 psi compressive strength and maximum water cement ratio of 0.45) should be used for the floor slab construction, as determined by the Project Structural Engineer. The mix design should be verifi9d by the project Civil / Structural Engineer, and placement of concrete should be observed and certified by the Concrete Deputy Inspector.
- Interior floor slabs and exterior concrete flatwork should be properly designed for the construction and serv ce loading conditions, and potential differential movements. The structural details, such as slab thickness, concrete strength, reinforcing criteria, joint spacing, etc. should be established by the Project Civil / Structural Engineer. The recommended minimu,11reinforcements for concrete slabs provided above are intsnded for preliminary design onl:,,. More restrictive criteria as dictated by structural design or regulsitory requirements shall govern.
- All reinforcement must be appropriately spaced and supported / maintciined during the pouring / finishing work such that it remains in proper condition.
- Unless specifically allcwed for aid approved as such by the project Civil/ Structural Engineer, no water is to be added to the concrete mix after the truck leaves the plant It should be cautioned that addition of water to the concrete mix will change the water-cement ratio of the plant design mix and can lead to undesirable shrinkage cracking, curling, etc. of concrete slats during curing.
- All concrete to be properly finished per American Concrete Institution .1 Portland Cement Association standards anj moist cured (for preferably at least 7 days). If moist curing is not feasible, an appropriate curing compound .1 sealant should be applied in accordance with the timing and methodology specified by the curing compound manufacturer.
- Truck tickets to include mix design, lime leaving plant, time of site arrival, and lime onsite *i* location of pour to be documented and copies sent to the project Civil I Structural Engineer.

- All poured concrete should be protected from loading and traffic for at least 7 days without written approval of the project Structural engineer

Waterproofing and Moisture / Water Vapor Retarder System

General

The following are key considerations which must be kept in mind when addressing inset level c::mstruction / foundation elements below grade which are sensitive to water/ moisture/ vapor. In our general experience. both from a design I build and a forensic standpoint, a large percentage of subterranean construction suffers from distress ranging from the all too common "'musty odors" I dampness, floor and wall covering damage and detording, to free water intrusion and wall / slab cracking and heaving. Understanding :he role and behavior of water - in its multiple fom,s of occurrence - is a critical step in the pro,:::ie; addressing and mitigation of nuisance and damage to subterranean foundation elements:

- Water is the root driving mechanism controlling both expansion and related ground acti•1ity and moisture intrusion related distress.
- Waler is insidious and will inevitably find its way into places it is not desired.
- Water buildup in the shallow subsurtace over the life of the pmject is inevitable in 1he case of projects such as this.
- V'later can exist and simultaneously co-exist / transform into multiple phases of occurrence: liquid / hydrostatic, capillarity, and vapor
- The flow and migration of water is controlled t:y free energy gradients. which include gravity, suction/ capillarity, salinity, humidity, temperature, and others.
- A major free energy gradient which drives waler lransmi sion through foundations into s;ructures is ihe combination of humidity and tem:::,erature, and differences in humidity and temperature between the ground and interior spac3s Waler, pariicularly as vapor, will tend to flow from areas of high humidity and temperature towards areas of lower humidity and temperature. This condition is crea1ed by atmospheric environment, particularly where air conditioning is used, fom,ing a gradient of high humidity and temperature in the underslab subgrade emironment a1d the twically much lower humidity and cooler environment in the interior space.
- The humidity, under equilibrium, in the subsurtace including the void spaces of soil, rock, gravel, drains, pipes, cavities, vaults, and other features is typically at or near 100% relative humidity. It only takes a small drop in temperature for condensation to develop, which may accumulate faster than it can dissipate - particularly where hum'dity remains nearty 100% and temperature changes are small. A similar condition will occur under low pem,eability floor coverings - creating a major form of flooring distress and damage.
- Capillarity, in particular where it interphases with vapor, is a very difficult to control phase, as it involves wicking like through a paper towel. Even a tiny imperfection can quickly grow a large downstream "wet spot' where it is controlled solely by a membrane or sheeting I coatirg.

- Since capillarity is co1trolled by the hydrophilic ('water-loving *I* allracting") chemistry of a substance, the use of a concrete mix unattractive to water in subterranean le•1el construction will further mitigate the moisture vapor transmission and wet-spotting. Thus, the use of proven hydrophobic additives should be considered for use in all foundation members in contact with and/or below grade that will support/ enclose living areas
- The different phases of water require their OVYn separate forms of mitigation - hydrost:ctic *I* free water drainage or barriers (especially those relying on clay or ;'bentonite" sheeting or layers) will not stop capillari1y or vapor; and mitigation measures to control vapor are not very effective at hydrostatic waler control. Even then, the concrete itself sh:::iuld be made as wateriight as possible

A major key to success is to recognize that multiple systems must be incorporated in P'Oper tandem to control all forms of water. Another key to success is to recognize that even with the best construction practice; some imperfections are inevitable and will be capitalized on by water.

Waterproofing - Subterranean Level

- Floor slab and wall waterprcofing should effectively mitigate free water, capillary water, and water vapor into the inset level of construction and should be installed in conformance with manufacturH's recommendations to resist full hydrostatic pressures that may develop cur ng and post-construction.
- Inset level slab construction and walls should be waterproofed to effectively mitigate free water, capillary water, ard water vapor into the sublevel and should be installed in conformance with manufacturer's recommendations to resist full hydrostatic pressures that may develop cur ng and post-construction.
- As an added measure to mitigate potential water/ moisture vapor transmissor into subterranean le•,el construction, we recommend inccrporating a hydrophobic admixture (Hycrete W1000, Xypex, or architect / structural engineer approved equivalent) in the concrete. This hyC:roph:::ibic mi:<ture should be considered for both the basement floor slab and subterranean structure walls Considerations may also be made to incorporating hydrophobic admi:<ture to secant pile walls.
- Dedicated waterstops and e_:::,oxy concrete bonding agents installed I applied according to manufacturer recommendations are required at all joints and between poLrs,
- A dedicated waterproofin;i membrane (e.g., Miraply) should included as part of the waterproofing systcJm for the nat slab and retaining walls and installed in accordance with the manufacturer's recommendations to resist full hydrostatic pressures that may develop during and post-construction.

- All waterproofing membranes (including Miraclay proCucts) should be rated for service in contact with seawater and approved by the manufactLrer as part of the overall design and installation.
- As appropriate and/or required by lhe manufacturer, waterproofing membranes should be protected *by* dedicated drainboard I protection board (e.g., Miradrain 6200 XL) installed in accordance with the manufacturer's specificalions for below-grade, vertical applications, with potential fer full-hydrostatic conditions.
- Miraclay should not be installed in direct contract with concrete to mitigate transmission of capillary water into subterranean floor slab I retaining w;:,11 concrete.
- Waterproofing design and installation for the project is to be performed by a qualified waterproofing contractor (American Product Coati,g;) with oversight from the product manufacturer (Carlisle Coatings and Waterproofing). A representative of 1he manufacturer should be retained to provide inspection services during waterproofing installation and verify that waterproofing specifications and installation criteria are appropriately met during construction. (Note: G3 does not inspect or approve waterproofing specifications or installation - waterproofi1g specifications and installation for the projecl are under the purview of the waterproofirg contractor and manufacturer's representative).

Moisture Water ' apor Retarder System

A moisture vapor retarder is recommended to reduce the JX)lential for moisture / water vapor migration up through the slabs constructed at grade and possibly affecting floor covering. Presented below are recommendations based on the gJic'elines by the American Concrete lnstitu:e '.ACI) to reduce the potential moisture/ water vapor i1trus!on in concrete slab-on-grade·

- The moisture/ water vapor retarder should consist of high strength membrane and should meet or exceed the ASTM: E-1745-97 Class A material requirements for water vapor permeance, tensile strength, and puncture resistance. The vapor retarder should consist of "Stego Wrap 15-mil" (Stego Industries, LLC) or 'Vapor Block" VB 15 (Americover, Inc.), or approved equal. The vapor retarder should be i..ncerlain by a capillary break comprised of mi1imum 4 inches thick pea gravel layer. The gravel layer should be placed and comp3cted on approved soil sub-grade.
- The membrane should be placed on approved gravel layer and properly lapped and sealed. Protection of this membrane from punctures / te3rs is critically important. Membranes intersecting utility pipes, sewer lines, ducts, or cirains must be properly wrapped am.ind the penetrations and sealed. All r;unctures and rips in the membrane should be repaired prier to placement of concrete. following manufacturer's recommendations. The vapor retarder should be ins:alled in general accordance with the procedures outlined in ASTM: E-1643, and in conformance with the installation procedures recommended by the manufacturer.

- In addition, floor w,erings (e.g., wood, tile, etc.) and other built-in features should be carefully selected with vapor lrrnsmission in mind and include proper preparation a1d installation in accordance with the manufacturer's recommendations.

It should be recognized that, e•,en with site surface and sub-drainage measures, 1here is potential for saturation of ground beneath concrete floor slabs due to water infiltration from irrigation, rain, and run-off, and adverse moisture / vapor development or flow through the soil subgrade. The upward migration of moisture in vaJX)r phase from soil subgrade through the slab-on-grade is inevitable under normal living conditions as they exist within a closed environment (e.g., structure). II is imperative that the Contractor properly i1stall the recommended site drainage measures, utility trench backfill, and the moisture/waler vapor retarder system in accordance wi;h the project design requirements and specificalions to mitigate potential moisture/ water vapor transmission into the structures.

It should be emphasized 1hat proper moisture/ water vapor retarder installation; proper control of irrigation, suriace runoff, rc1of drainage, and landscape water adjacent to the structure is very important 10 minimize probems caused by moisture and water vapor intrusion anc is the responsibility of the property owner. In addition, the property owner is responsible for maintaining proper site drainage as recommended hereinafter.

Expansive Soils

The near surtace site soils underlying the subject site are comprised of poorly-graded sands, and these soils are expecled to exhibit a very low soil expansion potential, and not considered a controlling factor in foundation design. The soil expansion potential should be verified duri1g or at the completion of rough grading operations.

Soil Corrosion and Concrete Design

Soluble Sulfates

Laboratory test results presented in Appendix B indicate sulfate exposure for concrete is Not Applicable (negligible) - however, in consideration of the project location with n a coastal environment, it is recom11ended that concrete in contact with soils be designed to resist potentially high sulfate exposure (i.e., Type V Portland Cement, minimum compressive strength of 4,500 psi, and maximum w:c = 0.45).

Metall:c Installations

Laboratory tests 10 evaluate the potential soil corrosivity to metall:c installations were not pertormed. In the absence of such testing, ihe soils along with any transient waters flowing through them should be ccnsidered to be highly corrosive to metals in contact with tllem. Attention to minimizing galvanic / chemical corrosivity (i.e., protective coatings, dieleclric couplings, eliminating mixing me1al types in contact or in near vicinity to each other} where in contact with soil and soil mois1ure can minimize these effects. An experienced corrosion consultant should be retained and their recommendations incorporated into the design if special / critical corrosive issues exist or further corrosion potential study is warranted.

Utility Trench Backfill

Bedding material should consist of sandy material exhibiting a Sand Equivalent (S.E) value of 30 or greater and should comr;ly with the requirements of the controlling governing jurisdiction. The on-site soils are not considered suitable for use as bedding material.

The site soils are considered suitable for trench backfill, provided ihey are free of organic material and rocks over 4 inches in maximum dimension.

Backfill of all exterior and interior trenches shoul:l be placed in thin lifts of appropriate thickness and mechanically compacted to achieve a relative compaction of not less than 90 percent throughout, based on ASTM: D1557. Care should be taken not to damage utility lines during compaction.

Utility trenches should not be located within the influence of footings. This is defined as a zone located below the footing end io line s'oping at an inclination of 1:1 (horizontal to ·1ertical) outward from the outside edge of footings. If utility lines are located within the zone of footings, the backfill should be compacted to a minimum 95 percent relative compacti:::in or slurry backfilled (minimum 1-1/2 sack cement-sand mix).

Trenches greater than 4 feel in depth should be shored or sloped back as required by the local regulatory agency. tile Stale of California Division of Industrial Safety Constructi::m Safety Orders, and Federal OSHA requirements.

Utility trench points of connection/ entryways into the residence should be appropriately sealed and cut-off to prevent moisture/ free-water intrusion into the structure.

Site Drainage

It should be noted that po:ential problems may develop when drainage is altered through construction of retaining walls, paved walkways, and patios. Conditions which will lead to ground saturation must be avoide:l:

All roof and surface drainage should be directed away from struciures and their appurtenances to approved drainage facilities. Ponding of water should be avoided. For graded soil areas, a minimum gradient of 5 percent away from stm:::lures should be main1ained.

The recommended drainage patterns should be established at the time of fine grading and maintained throughout the life :::,f the structure or, if altered, should be replaced with a property designed area drain system.

Irrigation activities at the site should be monitored and controlled to prevent over-watering. Planter areas adjacent to structures should be avoided. If utilized, such planters s ,ould include measures to contain irrigation wa1er and prevent moisture migration into walls and under foundations and slabs-on-grade.

Site drainage should also be designed, constructed, and maintained in accordance with appropriate City, County, State. and other jurisdictional requirements.

Landscape, Irrigation and Maintenance

General guidelines for landscape, irrigation and maint9ncm::;e are shown below:

- Landscape planting should consist of appropriate drought resistant vegetation as recommended by the Landscape Architect. Landscape irrigation should minimize soil moisture variation and should l:e properly maintained.
- Trees/ large shrubs with aggressive ro:::,t systems should be avoided near structures and slopes.
- The property owner is responsible for proper irrigation and for maintenance and repair of installed irrigation systems. Leaks should be repaired immediately. Sprinklers should be adjusted to provide maximum coverage with a minimum of water usage and overlap. Over-watering with consequent excessive runoff and ground saturation must be avoided.
- If automatic sprinkler systems ars installed, their use must be adjusted to account for natural rainfall conditions.
- All interceptor ditches, drainage terraces, down-drains, and any other drainage devices that are installed must be maintained and cleaned.
- Water must not be allowed to flow over constructed or natural slopes. This may require the construction of berms or ditches along the top of slopes, if such devices are not in place.
- With regard to foundation and slab *I* pavement pertormance adjacent to landscape areas, a key to maximum pertormance is landscaping and irrigation which minimizes soil moisture fluctuation over time. Avoiding saturation an::l ponding is also an important consideration. Diligent attention to maintenance is critical to adequate long-term performance.

Plan Review, Observations, and Testing

There are numerous geotechnical and engineering geologic conditions, phenomena, and issues present that will have considerable influence on the ,jesign, construction, and long-term pertomiance of the proposed development. Therefore, ii is considered of high importance and prudence that this firm be retained throLgrout the design and construction process to provide appropriate geotechnical and geologic suppori, input, review, and documentation services to assist the design and construction team with accounting for these issues appropriately. It is critical that the geotechnical and engineering geologic rscommendations be properly taken into account and understood by the parties in•1olved, and the intent of the recommenc·ations properly incorporated into the final design, construction, and leng-term maintenance of the project. illlajor milestones/ areas of applicability include:

- Foundation and Grading Plan Reviews;
- Earthwork, Grading, and Subterranean Excavations:
- Dewatering system installation and implementation;

- Subterranesm level waterproofing installation and mat slab/ retaining wall construction; aod
- Subsurtace / Underground Utilities Installation.

It is the responsibility of the owner/ developer to ensure the findings of our sludies and intents of our reccrnmencations are forwarded to the appropriate consultants and contractors of the project - and that they are incorporated into the final plans and cons:ruction. This report and the recommendations provided in this report should be considered a part of the project plans / specifications

LIMITATIONS

This report has been prepared for the exclusive use of the Julie Laughton Design Build and their design consu !ants relative to the design and construction of the prop::ised residence remodel/ addition. This rer;or: is not intended for other parties, and It may not co,1tain sufficient information for other purposes. This report and the recommendations confirmed herein are made with the understanciing lhm G3Soi1Works will be appropriately retained to assist with the design and construction team in proper interpretation, incorporation, a1d implementation of the intent of our report recommendations. Should a different firm be relained lo pertorm the subsequent pha;es of Cesign and construction, this report will be considered nJII and void.

The Owner or their representative should make sure that the information and preliminary recommendations presented in this report are brought to the attention of the Project Architect, Project Civil, and Project Structural Engineer and made part of the pro_ect plans. II is the responsibilrty of the contractor performing to ensure that the subject work is performed in accordance will' the project plans/ specifications and intent of the recommendations pro•1ided herein as part of the final construction.

This office should be prov:ded with final grading and foundation plans for re·,iew to enable us to confim, the preliminary recommendations and update the report as necessary. We reserve the right to modit; our recommendations, as appropriate. to better accommodate actual conditions and/or means and methods employed by the contractor pertorming the work.

The findings :::ontained in this report are based upon our evaluation and interpretation of the information cbtained from limited borings and the results of the laboratory testing and engineering analysis. The opinions and recommendations provided were based on the assumptior of the geotechnical conditions, which exist across the site, are similar to those observed in the test excavations. The conditions and characteristics of the sub-surface materials at locaticns and depth other than those excavated and observe-d may be different and no representations are made as to iheir quality and engineering properties. Based on our experience with similar sites, some •tariability and unanticipated conditions may be present, and some degree of "as-grading" is anticipated to be warranted to appropriately address 1hese conditions and to meet the iltent of the recommendations presented herein. As such, many of the overexcavation, embe:lment, and replacement issues, based on actual exposed conditions, may be at odds with the generalized considerations made herein. These issues and conditions should be appropriately evaluated/ addressed by ;his firm on a case-by-case basis at the time the work is performed - and the resulting recommendalions and refinements reported in a final as-graded report documenting the geotechrical aspects of the pro;ect work.

Should any conditions encountered during construction differ from those described herein, this office should be contacted immediately for evaluation of the actual conditions and for appropriate recommendations prior to continuation of work,

The findings and recommendations presented herein were developed in accordance with generally accepted professional engineering prirciples and local practice in the field of geologic and geotechnical engineering and reflect our best professional judgment. We make no other warranty, either express or implied.

This report is subject to review by the controlling authorities.

CLOSURE

If you have any questions. or require additional information, please comact the undersigned.

Respectfully submitted.

G3Soi1Works, Inc.

ErikC Haa .G., C.E.G.
ProjectEnQin

Director Engineerin,g

Attachmen1s: List of Selected References
Figure 1: Site Locaticn Map
Figure 4: Geologic M3p
Figure 5: Boring Location Map
Figure 6: Fault Map
Appendix A: Geotechnic31 Boring Logs
Appendix B: Laboratory Testing Results
Appendix C: ASCE 7-16 Seismic Design Parameters
Appendix D: Liquefaction Analysis Results

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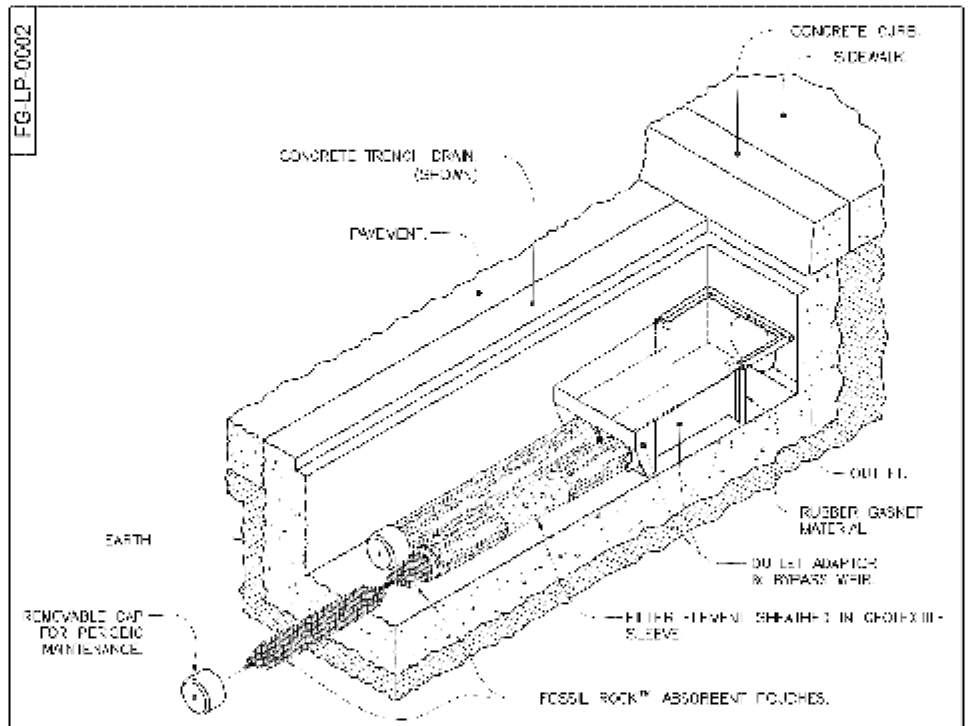


NOTES:

1. Filter insert shall have a high flow bypass feature.
2. Filter outlet adapter shall be constructed from stainless steel Type 304. Alternate outlet adapter for shallow installations shall be PVC SCH-40. See detail B, sheet 2 of 2.
3. Filter medium shall be *Fossil Rock* ™, installed and maintained in accordance with manufacturer specifications.
4. Storage capacity reflects 80% of maximum solids collection prior to impeding filtering bypass.
5. For alternate outlet adapter configurations used for extremely shallow trench drains contact Oldcastle Stormwater Solutions for engineering assistance.
6. Filter element should be a minimum of one half the length of trench. Confirm flow rate upon order.

FloGard®
Catch Basin Insert Filter
Trench Drain Style

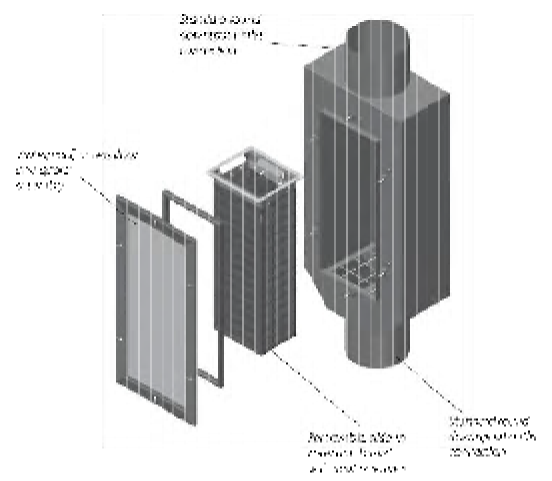
Oldcastle® Stormwater Solutions

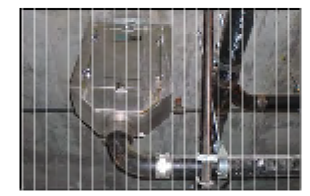
FG LP 0002 — SHEET 1 OF 2

FloGard Downspout Filter

Inlet Filtration

The FloGard Downspout Filter is typically installed on commercial building downspout pipes for the removal of non-soluble pollutants normally found on building roofs and parking decks. It is an effective filtering device at low flows and incorporates a high flow bypass to ensure that the downspout conveyance capacity is not impeded.





Installed in a parking garage

Specifications

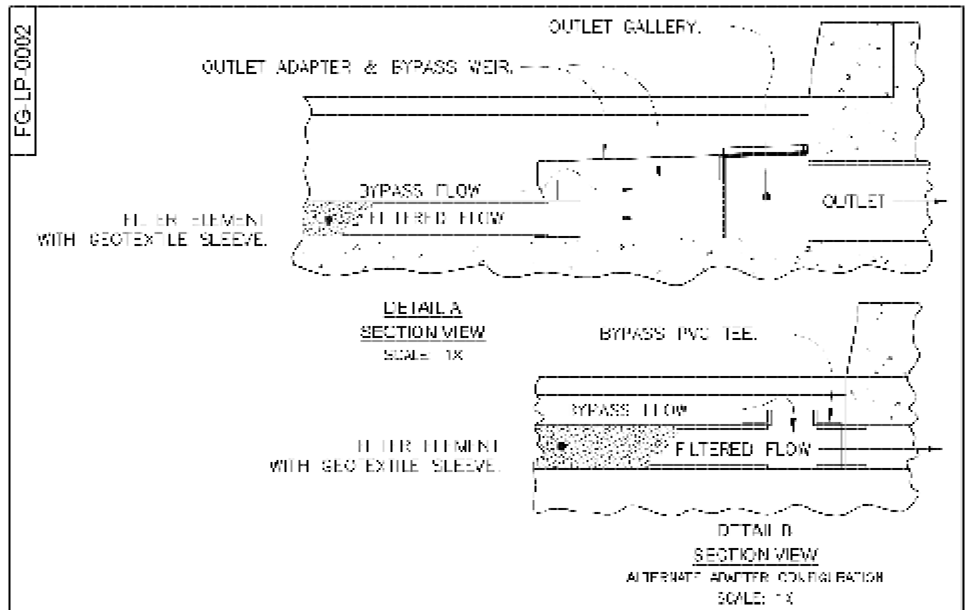
Model No.	Inlet ID (inches)	Box OD (inches)	Solid Storage (cu. ft)	Filtered Flow (gpm)	Bypass Capacity (gpm)
[illegible]	4	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	6	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	8	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	10	[illegible]	[illegible]	[illegible]	[illegible]

The FloGard Downspout Filter is accepted by the *City of Los Angeles* to treat rooftop runoff.

IAPMO CERTIFIED

The FloGard Downspout Filter has been certified by the International Association of Plumbing and Mechanical Officials (IAPMO) for in-line filtration of stormwater runoff in building downspouts. The FloGard Downspout Filter complies with the Uniform Plumbing Code and International Plumbing Code.

Oldcastle® Stormwater Solutions



SPECIFIER CHART						
MODEL	FILTER TYPE	TRENCH WIDTH ID*	MINIMUM TRENCH DEPTH	SOLIDS STORAGE CAPACITY CUBIC FEET **	FILTERED FLOW CUBIC FEET / SECOND **	TOTAL BYPASS CAPACITY CUBIC FEET /SECOND
FG-TDCP3	PIPE	3.0	6.5	0.1	0.6	0.1
FG-TDCP4	PIPE *	4.0	6.5	0.2	0.6	0.1
FG-TDCP6	PIPE	6.0	6.5	0.4	0.6	0.2
FG-TDCP8	PIPE	8.0	6.5	0.7	0.6	0.3
FG-TDCP10	PIPE	10.0	6.5	0.9	0.6	0.5
FG-TDCP12	PIPE	12.0	6.5	0.9	1.0	0.6
FG-TDCP18	PIPE	18.0	6.5	1.3	1.5	1.1
FG-TDCP24	PIPE	24.0	6.5	1.8	2.0	1.5
FG-TDCA6	PANEL	6.0	4.5	0.4	0.2	0.2
FG-TDCA8	PANEL	8.0	4.5	0.7	0.2	0.3
FG-TDCA10	PANEL	10.0	4.5	0.9	0.3	0.5
FG-TDCA12	PANEL	12.0	4.5	1.0	0.4	0.6
FG-TDCA18	PANEL	18.0	4.5	1.4	0.8	1.1
FG-TDCA24	PANEL	24.0	4.5	1.8	1.1	1.5

* ALTERNATE ADAPTER CONFIGURATION, SEE DETAIL B.
** CAPACITY PER 5-FT. SEGMENT USED.

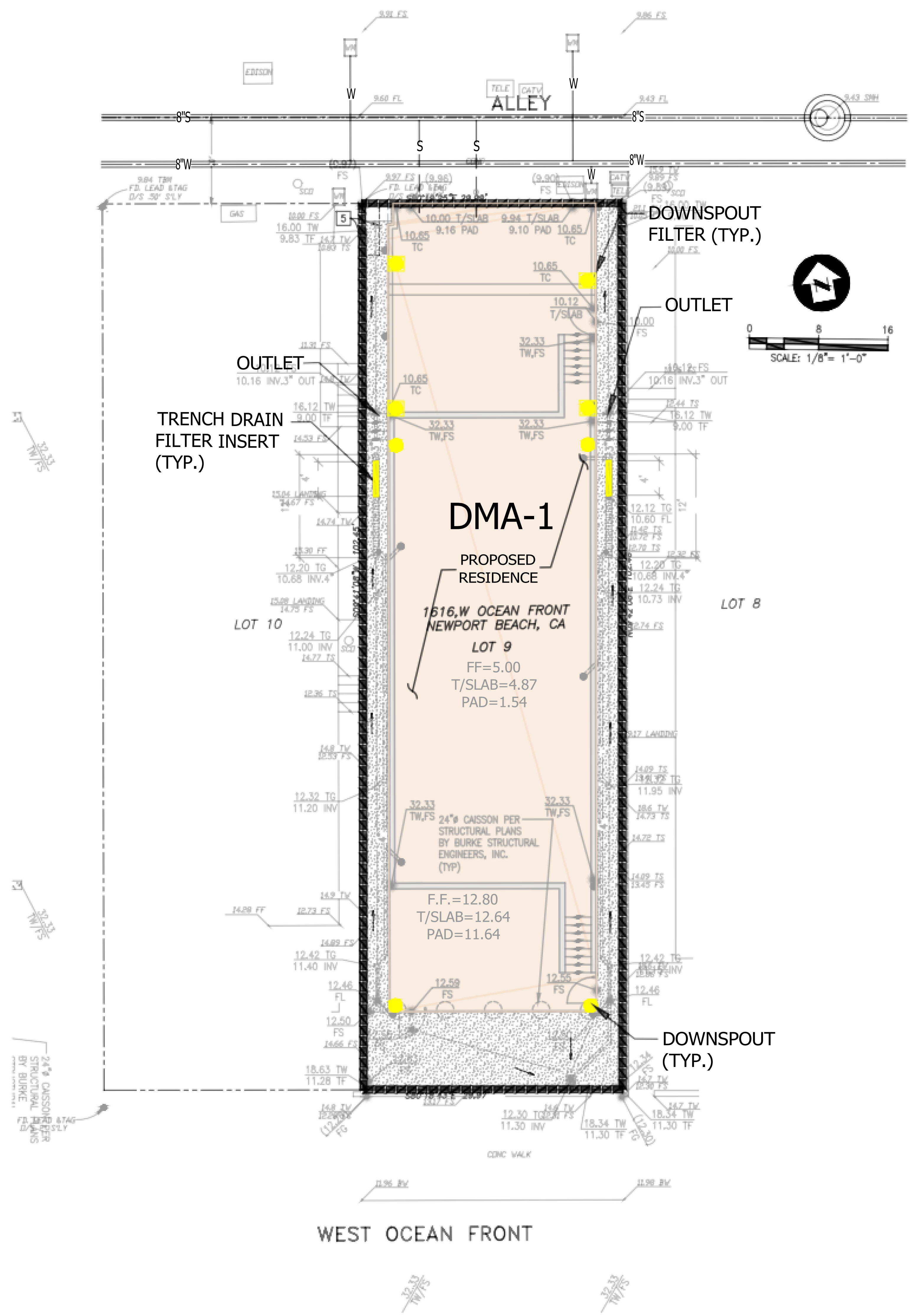
FloGard®
Catch Basin Insert Filter
Trench Drain Style

Oldcastle® Stormwater Solutions

FG LP 0002 — SHEET 2 OF 2

WQMP LEGEND

- FILTER INSERT
- LANDSCAPE AREA / PERVIOUS AREA
- PROPOSED CONCRETE PAVING
- PROPOSED BUILDING
- RUNOFF FLOW DIRECTION
- PROPOSED DOWNSPOUT
- DRAINAGE BOUNDARY



REVISIONS