Preliminary

Drainage Report

For

Mid County Parkway Commercial
NWC of Ramona and Nevada
DPR 22-00028

Perris, CA

August 2022

Revised
November 2023

United Engineering Group - California
8885 Haven Avenue
Suite 195
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Tel: (909) 466-9240

Provided for:

Optimus Building Corp.
c/o MNA
445 S D Street
Perris, CA 92570
Contact: Mike Naggar

This report has been prepared by or under the direction of the following registered civil engineer who attests to the technical information contained herein. The registered civil engineer has also judged the qualifications of any employees that have provided data and calculations upon which the recommendations, conclusions, and decisions are based.

Christopher F. Lenz, PE 63001

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APPENDICES

1 INTRODUCTION

1.1. SITE DESCRIPTION

1.1.1. LOCATION

The project is located at the northwest corner of Ramona Expressway and Nevada Street in the City of Perris. Legally, it is parcels 314-180-023 and 314-180-024.

1.1.2. EXISTING FEATURES

The site consists of 11.24 gross acres of unsubdivided vacant land. The site drains gradually northwest to southeast with varying terrain with a flow slope of 0.7 percent. The site is bordered by developed properties to the north, and the highway to the west. It has been graded in the past and shows evidence of continued disturbance and compaction. Some seasonal grasses are present. There are no defined flow paths through the site. The site is within the Perris Valley MDP, with the proposed Line E regional storm drain system.

1.1.3. PROPOSED CONDITION

It is proposed that the subject property be developed to permit development of a Gas Station, two fast food restaurants, and a storage facility per the request of the client. Primary access to the site will be from Nevada Street. The buildings will be surrounded by parking on the south and east sides. The site will be primarily impervious surface, with some open space and landscape areas (some used as buffers and water quality features).

1.2. PURPOSE OF REPORT

The purpose of this report is to review the regional studies prepared for this area (Perris Valley Master Drainage Plan), analyze the proposed conditions hydrology and hydraulics, and ensure design compatibility with the master plan and city code. This report will analyze the hydrology of the landscape and assess the hydraulic conditions of the subject parcel to verify consistency with the previously listed reports.

1.3. FEMA INFORMATION

The Flood Insurance Rate Maps (Panel 06065C1430 G & H) for this subject property shows that the site falls within Zone X. Zone X denotes areas determined to be outside the 1% annual chance floodplain. Refer to Appendix E for detail.

2. EXISTING DRAINAGE PATTERNS

2.1. OFFSITE

There are no offsite flows impacting the subject property. Most regional drainage is blocked by the highway, with a few existing culverts outleting east of the highway. Flow form those culverts is routed south and east around the property by an existing flow path as identified on the existing condition map. The larger Line F flows outlet north of the site, and have been accommodated by the development north and routed to Line E via storm drain. See Figure 3 Offsite Exhibit – Optimus Logistics Center. No regional flows impact the site.

2.2. ONSITE

The site is un-subdivided vacant land. The site drains gradually northwest to southeast with varying terrain with a flow slope of 0.7 percent. The site is infill and is bordered by developed properties. It has been graded in the past shows evidence of continued disturbance and compaction. Some seasonal grasses are present. The runoff from the site is primarily sheet flow. The ultimate outfall is the northeast corner of the site. The site is within the Perris Valley MDP, Line E regional storm drain system.

3. PROPOSED DRAINAGE PATTERNS

3.1. OFFSITE

As the project is within the areas of the ADP, it will participate in regional fees. The site will outlet at the southeast corner via an existing earthen channel. From there, the adjacent owner will accept and routes those flows to the Line E facilities in Webster. There are no further regional or offsite drainage facilities proposed.

3.2. ONSITE

Due to the negligible infiltration potential, the project has been designed with underground storage to offset the difference in runoff hydrograph volume between the developed and pre-developed condition for the 24 hour duration, 10 year return frequency design storm. The site soils have tested infiltration potential less than the required 1.6in/hr (Appendix D), so bio swales designed along the south of the site will provide water quality treatment. De-watering of the underground storage will be provided by a pumping systems. In addition to the underground storage a system of storm drain is proposed to collect and route the site runoff (refer to section 5 and Figure 3 for detail).

4. HYDROLOGIC CONDITIONS

The Synthetic Unit Hydrograph and Rationale Methods have been employed to determine peak runoff amounts and volumes. The Riverside County Flood Control and Water Conservation District (RCFCD & WCD) Hydrology Manual (reference 1) was used to develop the hydrological parameters for the 1, 3, 6, and 24 hr 2, 5, and 10 year storm event. Refer to appendix A for detail.

In the existing condition, the proposed development envelope is relatively flat with an average flowline slope of 0.7 percent and is in relatively poor condition. It is proposed to be developed into a commercial center. The onsite runoff potential has been analyzed with the Synthetic Unit Hydrograph Method per the Riverside County Flood Control and Water Conservation District (RCFCD & WCD) Hydrology Manual (reference 1). The Following Data is used in the calculations;

Soils Group – B
Pre-development Runoff Index – 78, with 0% impervious
Post-development Runoff Index – 56 with 95% impervious

Rainfall Data – NOAA 14
2yr – 1hr = 0.457”
100yr – 1hr = 1.35”
2yr – 3hr = 0.799”
100yr – 3hr = 2.01”
2yr – 6hr = 1.11”
100yr – 6hr = 2.70”
2yr – 24hr = 1.94”
100yr – 24hr = 4.91”

The results of that analysis are as follows, with detailed output in Appendix A;

Mid County Pre-Development								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	6.4	0.1	2.6	0.1	2.0	0.1	0.3	0.2
5 year	11.1	0.2	5.1	0.2	4.1	0.2	0.4	0.2
10 year	17.0	0.5	9.3	0.5	7.7	0.6	2.2	0.6

Mid County Post-Development								
	Storm Duration							
	1 hour		3 hour		6 hour		24 hour	
Frequency	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume	Q Peak	Volume
2 year	10.1	0.4	6.9	0.6	6.4	0.9	2.6	1.6
5 year	15.0	0.6	9.7	0.9	8.7	1.2	3.5	2.1
10 year	19.0	0.7	12.1	1.1	10.9	1.4	4.2	2.6

To mitigate the increased runoff from the development four underground storage facilities have been provided to offset the difference in runoff hydrograph volume between the developed and pre-developed condition for the 24 hour duration, 10 year return frequency design storm per the below table.

	Volume	
Mid County Parkway	[cf]	[ac-ft]
Pre Development 10yr 24hr	24,353	0.56
Post Development 10yr 24hr	110,945	2.55
Total Vol Required	86,592	1.99
Total Vol Provided	86,652	1.99

In total the 4 facilities mitigate the difference in 10 year 24 hour runoff volume from development. The footprint of the proposed underground systems is indicated on the proposed condition exhibit, and the grading and drainage plan, with additional detail in Appendix B. At time of final design additional storage, basin, and outlet details will be required.

5. HYDRAULIC CONDITIONS

5.1. Existing Conditions

There are no existing storm facilities affecting the subject site.

1.1 Proposed Conditions

The proposed condition for this site will be to construct a network of paved access within the site to convey storm runoff into a system of storm drain. Storm drains will be used to collect and route the runoff from the paved areas and into the underground systems. The underground systems will pump storm water to bio swales for treatment. Preliminary storm drain lines have been shown on the proposed condition exhibit, and the grading and drainage plan. For maintenance considerations a minimum 18" line size will be used, with sizing required at time of final design.

6. WATER QUALITY

The project will comply with Water Quality rules, with treatment provided by pre-treatment systems and bio-swales surface treatment. Refer to the Project Preliminary WQMP for details.

7. MAINTENANCE

It is proposed that none of the features discussed above to handle onsite flows, will be required to be placed in flood control easements (Max line size 36"). Maintenance and ownership of the onsite facilities with be the responsibility of the property owner. At the Cities request, storm drain easements can be provided.

Internal to the site, it is assumed that the underground systems will be the responsibility of the tenant, a property association, or the Owner, with easements being placed to allow for city access and emergency maintenance.

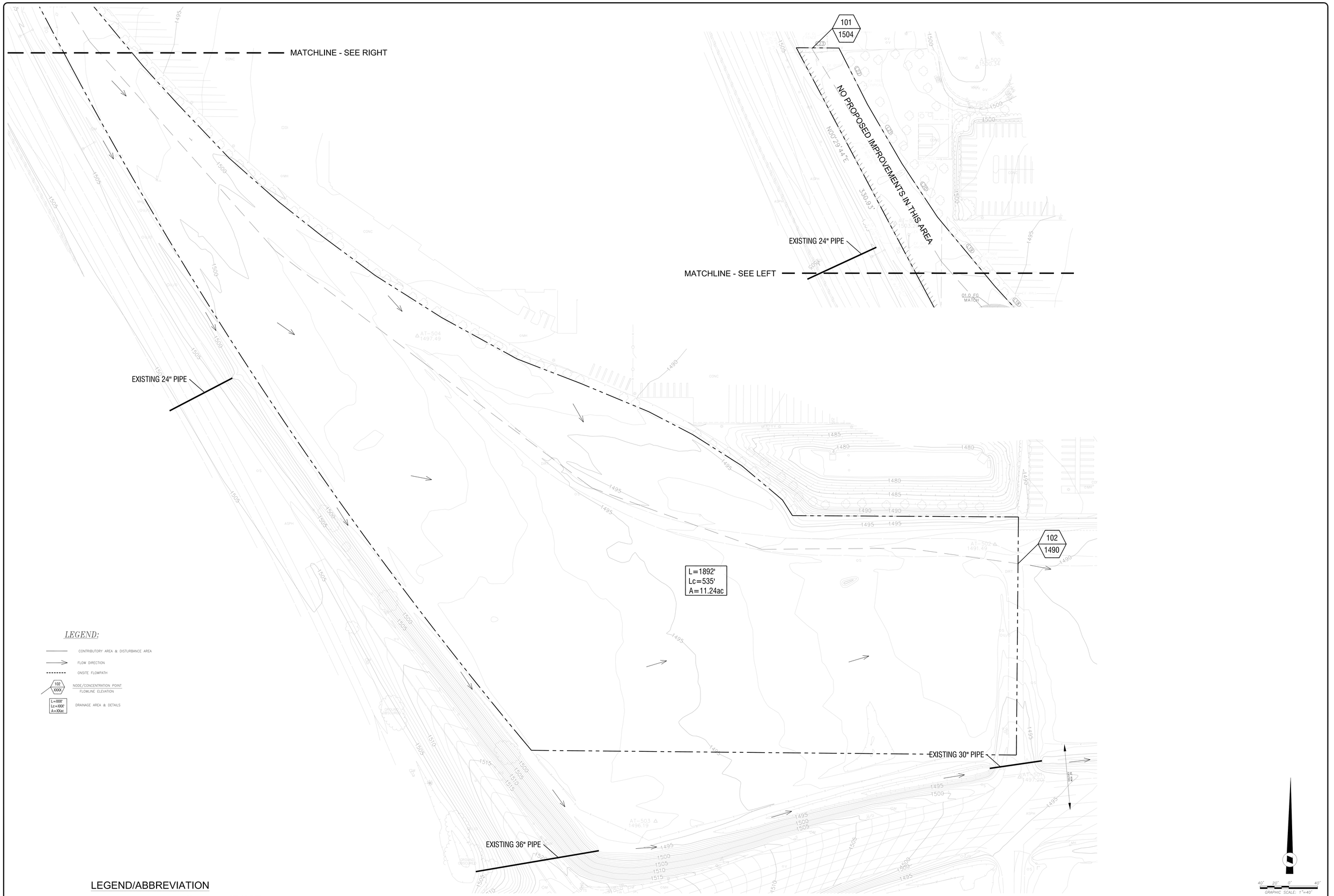
There are other smaller inlets, control structures, channels, and pipes will be the responsibility of the tenant, a property association, or the Owner.

REFERENCES

1. Riverside County Flood Control and Water Conservation District Hydrology Manual, April 1978.

Figure 1

Drainage Map Existing



LEGEND:

- CONTRIBUTORY AREA & DISTURBANCE AREA
- FLOW DIRECTION
- ONSITE FLOWPATH
- 102 / XXXX — NODE/CONCENTRATION POINT / FLOWLINE ELEVATION
- L=XXX' Lc=XXX' A=XXac — DRAINAGE AREA & DETAILS

LEGEND/ABBREVIATION

CF	CURB FACE	TC	TOP OF CURB
FG	FINISH GRADE	TG	TOP OF GRATE
FF	FINISHED FLOOR	SD	STORM DRAIN
FL	FLOW LINE	P	PROPERTY LINE
GB	GRADE BREAK	PED.	PEDESTRIAN
HP	HIGH POINT	TYP.	TYPICAL
INV	INVERT		EXISTING FIRE HYDRANT
LP	LOW POINT		WATER VALVE
R/W	RIGHT-OF-WAY		WATER METER
P=XX.X	PAD ELEVATION		STREET LIGHT
FF=XX.X	FINISH FLOOR ELEVATION		PROPOSED STORM DRAIN LINE
2%	DIRECTION OF DRAINAGE/GRADE	1425	EXISTING CONTOUR
	STORAGE AREA 26' FIRE LANE		

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

DIGALERT — DIAL BEFORE YOU DIG. TOLL FREE 1-800-227-2600. A PUBLIC SERVICE BY UNDERGROUND SERVICE ALERT. TWO WORKING DAYS BEFORE YOU DIG

NOTE:
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MARK	BY	DATE	REVISIONS	APPR.	DATE
			ENGINEER		CITY

DESIGN BY: DRAWN BY: CHECKED BY:

CITY OF PERRIS

APPROVED BY:

CITY ENGINEER DATE

SEAL-ENGINEER: REGISTERED PROFESSIONAL ENGINEER — CHRISTOPHER F. LENZ — NO. 63001 EXP. 6/30/24 — CIVIL — STATE OF CALIFORNIA

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Phone: 909.466.9240
www.unitedeng.com

PREPARED UNDER THE DIRECTION OF:

CHRISTOPHER F. LENZ 63001

DATE: _____ REGISTRATION EXPIRES 6-30-24

BENCH MARK:
NGS DATA POINT:
DESIGNATION-432:PID-DX5439
3.2" ALUMINUM DISC STAMPED "BM432"
SW CORNER PERRIS BLVD AND RIDER
STREET BASE OF STEEL SIGNAL LIGHT,
3.5' X 2.7' CONC BASE ON EAST SIDE
SET FLUSH

ELEVATION = 1455.11' NAVD 88

SCALE 1"=60'
FIELD BOOK
DESIGN
DRAWN
CHECKED

ZONING CASE #DPR ___-_____ SPA 22-_____
PERRIS, CA, 92571
COUNTY OF RIVERSIDE

PRELIMINARY GRADING & DRAINAGE PLAN MID COUNTY PARKWAY DRAINAGE EXISTING

FOR: OPTIMUS BUILDING CORP. W.O. CITY FILE NO. DPR 22-____

SHEET NO. 1 OF 1 SHEETS

BGR NO. _____ WDID:

FIGURE 2

Drainage Map Proposed

MATCHLINE - SEE RIGHT

MATCHLINE - SEE LEFT

INTERSTATE 215

CITY OF PERRIS

RAMONA

CALTRANS ROW

CITY C

COUNTY O
RIVERSIDE

NO PROPOSED IMPROVEMENTS IN THIS AREA

BLDG. -A- 16,455 1st FLR
3 STORIES
Office/Entry

LANDSCAPING

CONNECT TO WATER IN WEBSTER AVE
CONNECT TO SEWER IN WEBSTER AVE

L=1892'
Lc=535'
A=11.24ac

101
1504
EX INV

102
1490

DETAIL "A" - CURB FACE OPENING

NTS

6" PER PLAN 6"

DETAIL "B" - RIP-RAP PAD

NTS

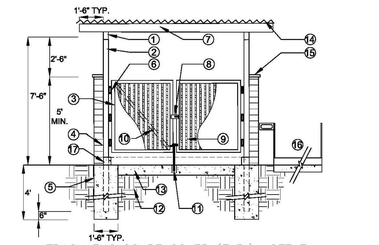
1' MIN.
PER PLAN
FILTER FABRIC
RIP-RAP WITH 6" MIN. COBBLE

NEVADA AVE.

N.T.S.

R\W
P.L.
30'
PROJECT SIDE (S)
20'
PROPOSED IMPROVEMENTS
20'
FUTURE IMPROVEMENTS
30'
2%
SIDEWALK
SIDEWALK

LINE TABLE		
LINE #	LENGTH	BEARING
L10	102.87'	N67°26'31"W
L11	93.53'	N68°57'39"W
L12	119.79'	N61°15'53"W
L13	109.51'	N57°38'44"W
L14	92.36'	N53°28'24"W
L15	75.37'	N51°39'44"W
L16	93.15'	N48°36'22"W
L17	100.92'	N43°33'34"W
L18	73.44'	N42°24'15"W
L19	125.95'	N39°39'38"W
L20	88.95'	N33°36'49"W
L21	95.38'	N30°12'04"W
L22	87.81'	N26°52'30"W
L23	59.24'	N89°35'46"W



TRASH ENCLOSURE COVER (TYP.) NOTE 7
N.T.S.

TRASH ENCLOSRE COVER NOTES:
1. 4-INCH X 6-INCH METAL BEAM POWDER COATED
2. 4-INCH X 4-INCH TUBULAR STEEL POST. SET POST FLUSH TO WALL. GROUT FILL POST SOLID. PAINT WITH 2 COATS ZINC PRIMER & 2 COATS SATIN FINISH PAINT.
3. GATE FRAME CONTINUOUS, ATTACH GATE FRAME TO STEEL POST WITH 3 HEAVY DUTY HINGES. CONTRACTOR SHALL SUPPLY SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION.
4. CMU WALL / REFER TO STRUCTURAL ENGINEERS SPECIFICATIONS FOR REINFORCEMENT.
5. CONCRETE FOOTING / REFER TO STRUCTURAL ENGINEERS SPECIFICATIONS FOR REINFORCEMENT.
6. HEAVY DUTY HINGES.
7. METAL TRELLIS POWDER COATED (OR 2 COATS ZINC PRIMER & 2 COATS SATIN FINISH PAINT); COLOR TO BE SELECTED /REFER TO SHOP DRAWINGS FOR ROOF FRAMING.
8. 3-INCH X 8-INCH X 1/4-INCH THICK GALVANIZED STEEL SJOP PLATE AND LOCKABLE KEEPER. WELD TO GATE FRAME - AS SHOWN / CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL.
9. MINI-V-BEAM 26 GAUGE WITH ENDURA CLAD FINISH AS MANUFACTURED BY ASC PACIFIC INC. OR APPROVED EQUAL. SPOT WELD TO ANGLE FRAME (CONTRACTOR TO SUBMIT SHOP DRAWINGS).
10. 9-INCH X 1/2-INCH GALVANIZED STEEL DIAGONAL CROSS BRACE / FILLET WELD TO FRAME AND SPOT WELD TO MINI-V-BEAM (AT BACK OF GATE).
11. HEAVY DUTY DROP CRANE BOLT. ATTACH TO GATE FRAME. SET 1-6 INCHES LONG X 1-INCH O.D. GALVANIZED PIPE SLEEVE TO ACCEPT BOLT. 'STANLY' CD 10009-18 INCHES OR APPROVED EQUAL.
12. COMPACTED SUBGRADE PER GEOTECHNICAL REPORT.
13. 6-INCH THICK PCC CONCRETE PAD WITH 6 X 6 X 10 WWM.
14. METAL ROOF; CORRUGATED STEEL - BERRIDGE LEAD-COPE STRAIGHT S-DECK / INSTALL PER MANUFACTURERS SPECIFICATIONS.
15. 8-INCH X 2-INCH X 16-INCH CMU CAP TO MATCH WALL COLOR.
16. DISABLED ACCESSIBLE RAMP AND HANDRAIL IF REQUIRED.
17. CONCRETE CURB

NOTES
A. CONCRETE FOOTING TO ACHIEVE 4300 PSI @ 28 DAYS.
B. TRASH BINS - SIZE AND NUMBER AS REQUIRED BY CITY.

LEGEND:

- CONTRIBUTORY AREA & DISTURBANCE AREA
- FLOW DIRECTION
- ONSITE FLOWPATH
- 102 / XXXX — NODE/CONCENTRATION POINT / FLOWLINE ELEVATION
- L=XXX' / Lc=XXX' / A=XXac — DRAINAGE AREA & DETAILS

CONSTRUCTION NOTES:

1. CONSTRUCT STORM DRAIN AND FITTINGS AT LOCATIONS SHOWN.
2. CONSTRUCT CONTECH TYPE OR EQUIVALENT UNDERGROUND STORAGE SYSTEM PER PLAN.
3. CONSTRUCT GRATE INLET
4. CONSTRCUT PRE-TREATMENT SYSTEM PRION TO CONNECTION TO UNDERGOUND STORAGE.
5. CONSTRUCT PARKWAY DRAIN FOR OVERFLOW.
6. INSTALL 18" EQUALIZATION PIPE.
7. INSTALL TRASH ENCLOSURE PER LANDSCAPE ARCHITECT PLAN.
8. INSTALL 326 LF OF RETAINING WALL PER ELEVATIONS ON PLANS
9. INSTALL 6" CURB AND GUTTER PER PLAN.
10. 4' CURB OPENING WITH RIP RAP FOR DRAINAGE PATH.
11. AREA FOR DCDA ASSEMBLY WATER SERVICE.
12. AREA FOR GENERATOR.
13. INSTALL 8" WATER LINE.
14. INSTALL 8" SEWER LINE.
15. DISCHARGE PIPE FROM UNDERGROUND STORAGE PUMPING SYSTEM

LEGEND/ABBREVIATION

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

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MARK	BY	DATE	REVISIONS	APPR.	DATE
				CITY	

ENGINEER
DESIGN BY: DRAWN BY: CHECKED BY:

CITY OF PERRIS
APPROVED BY:
CITY ENGINEER DATE

SEAL-ENGINEER
REGISTERED PROFESSIONAL ENGINEER — CHRISTOPHER F. LENZ — NO. 63001 EXP. 6/30/24 — CIVIL — STATE OF CALIFORNIA

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PREPARED UNDER THE DIRECTION OF:
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ELEVATION = 1455.11' NAVD 88

SCALE 1"=60'
FIELD BOOK
DESIGN
DRAWN
CHECKED

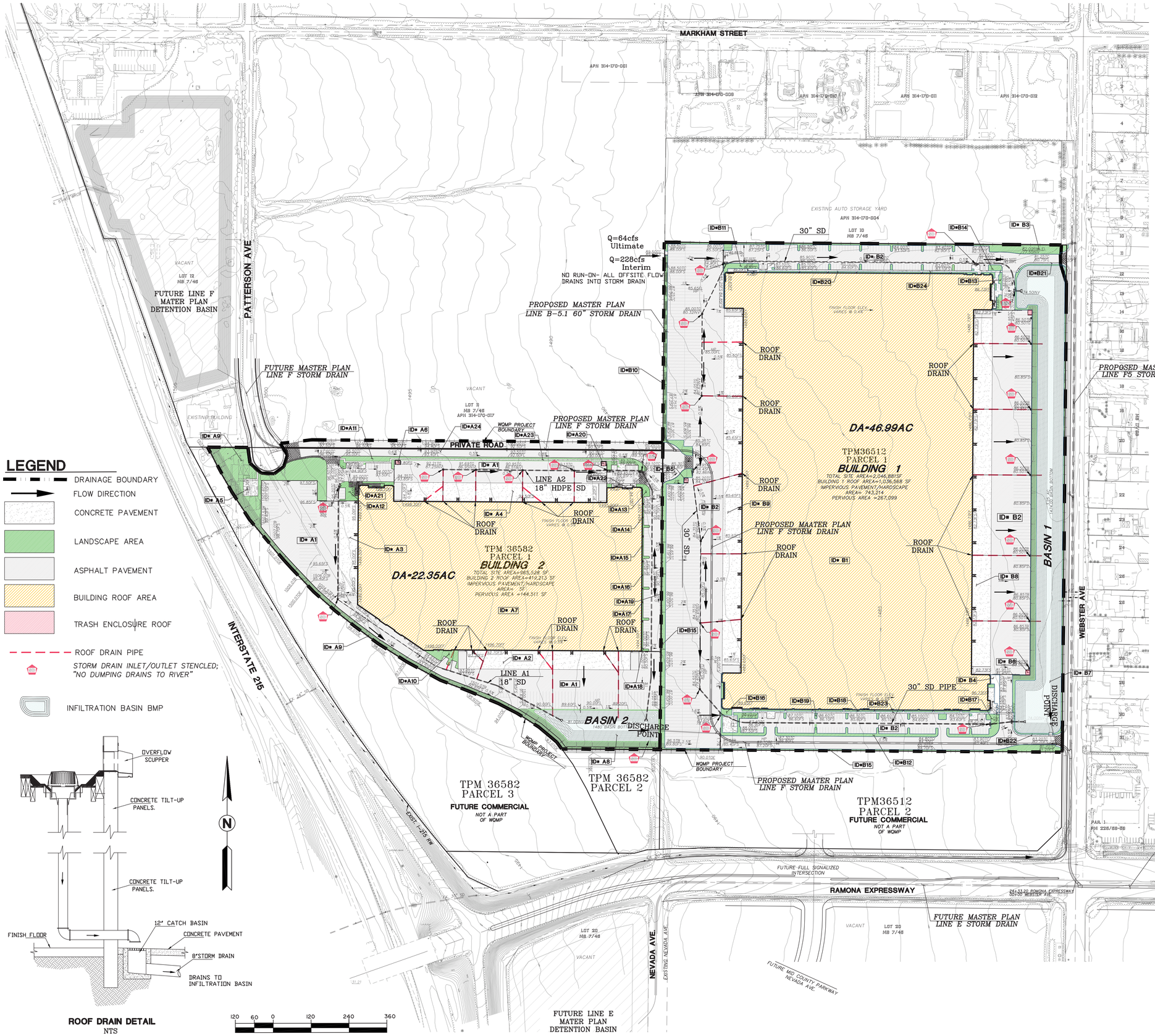
ZONING CASE #DPR __-_____ SPA 22-_____
PERRIS CA, 92571
COUNTY OF RIVERSIDE
PRELIMINARY GRADING & DRAINAGE PLAN MID COUNTY PARKWAY DRAINAGE PROPOSED

FOR: OPTIMUS BUILDING CORP.
W.O.
CITY FILE NO. DPR 22-_____

SHEET NO. 1 OF 1 SHEETS

FIGURE 3

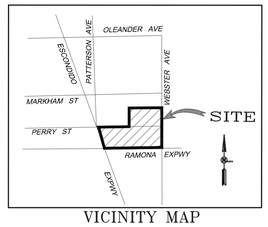
Offsite Exhibit – Optimus Logistics Center



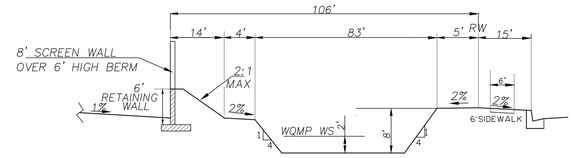
LEGEND

- DRAINAGE BOUNDARY
- FLOW DIRECTION
- CONCRETE PAVEMENT
- LANDSCAPE AREA
- ASPHALT PAVEMENT
- BUILDING ROOF AREA
- TRASH ENCLOSURE ROOF
- ROOF DRAIN PIPE
- STORM DRAIN INLET/OUTLET STENCLED; "NO DUMPING DRAINS TO RIVER"
- INFILTRATION BASIN BMP

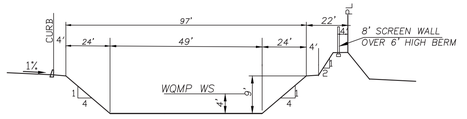
ROOF DRAIN DETAIL
NTS



VICINITY MAP



BUILDING 1 INFILTRATION BASIN
TYPICAL SECTION
NTS



BUILDING 2 INFILTRATION BASIN
TYPICAL SECTION
NTS

BOTTOM AND SIDES OF THE BASINS TO BE PLANTED WITH NATIVE GRASS PLANT SPECIES.

INFILTRATION BASIN SUMMARY TABLE

BASIN NO.	ACRES TREATED	VOLUME REQUIRED	VOLUME PROVIDED	DEPTH
BLUDING 1 BASIN NO. 1	49.66 AC	83,407 CF	100,964 CF	2 FT
BLUDING 2 BASIN NO. 2	22.35 AC	39,274 CF	43,696 CF	4 FT

BASIN 1
2 YEAR STORM BASIN DISCHARGE

BUILDING 1	3HR	6HR	24HR
BASIN NO. 1	cFs	cFs	cFs
PRE-DEVELOPMENT	11.67	9.40	1.12
POST DEVELOPMENT	25.77	22.21	8.52
BASIN OUTLET	0.29	0.32	0.72
% OF PRE-DEVELOPED.	2.5%	3.4%	64.3%

BASIN 2
2 YEAR STORM BASIN DISCHARGE

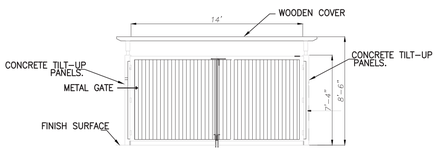
BUILDING 2	3HR	6HR	24HR
BASIN NO. 2	cFs	cFs	cFs
PRE-DEVELOPMENT	7.09	5.46	0.55
POST DEVELOPMENT	14.08	12.72	4.52
BASIN OUTLET	0.44	0.48	0.59
% OF PRE-DEVELOPED.	6.2%	8.8%	107.3%

BASIN 1
10 YEAR STORM BASIN DISCHARGE

BUILDING 1	3HR	6HR	24HR
BASIN NO. 1	cFs	cFs	cFs
PRE-DEVELOPMENT	26.68	26.68	26.68
POST DEVELOPMENT	43.69	36.53	13.78
BASIN OUTLET	0.35	0.92	2.36
% OF PRE-DEVELOPED.	1.3%	4.2%	75.4%

BASIN 2
10 YEAR STORM BASIN DISCHARGE

BUILDING 2	3HR	6HR	24HR
BASIN NO. 2	cFs	cFs	cFs
PRE-DEVELOPMENT	15.70	12.48	1.65
POST DEVELOPMENT	23.22	20.58	7.32
BASIN OUTLET	0.51	0.73	3.90
% OF PRE-DEVELOPED.	1.3%	4.2%	236.4%



TYPICAL TRASH ENCLOSURE

ENGINEER
HLC CIVIL ENGINEERING
39281 VIA CADIZ
MURRIETA CA 92563
(951)640-0957 Email: hlc.eng@verizon.net

PREPARED MARCH 29, 2014

POST-CONSTRUCTION BMP SITE PLAN P12-10-0005 OPTIMUS LOGISTICS CENTER

Appendix A