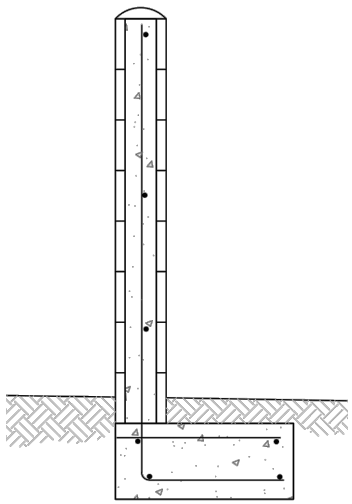
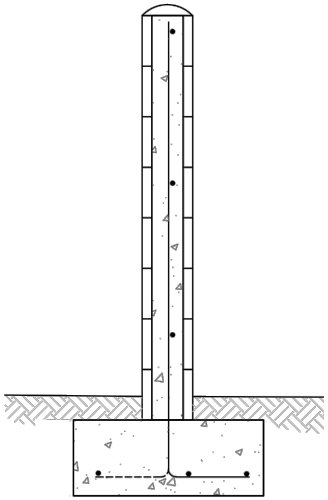
CITY OF MONROVIA

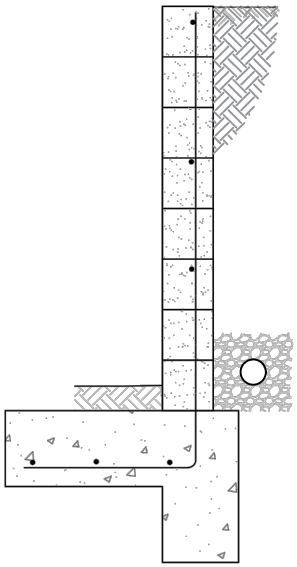
WALL STANDARDS



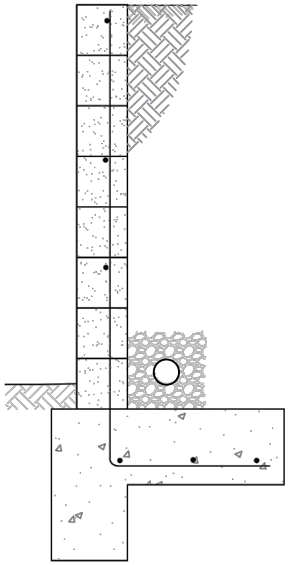
BLOCK WALL A



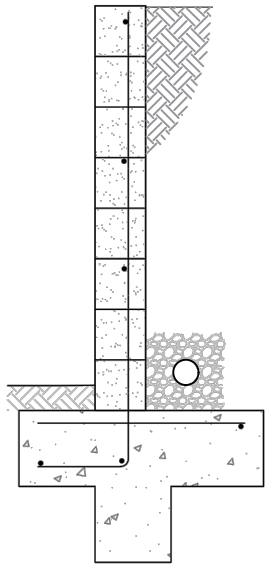
BLOCK WALL B



RETAINING WALL A
CANTILEVERED FOOTING



RETAINING WALL A
REVERSED CANTILEVERED FOOTING



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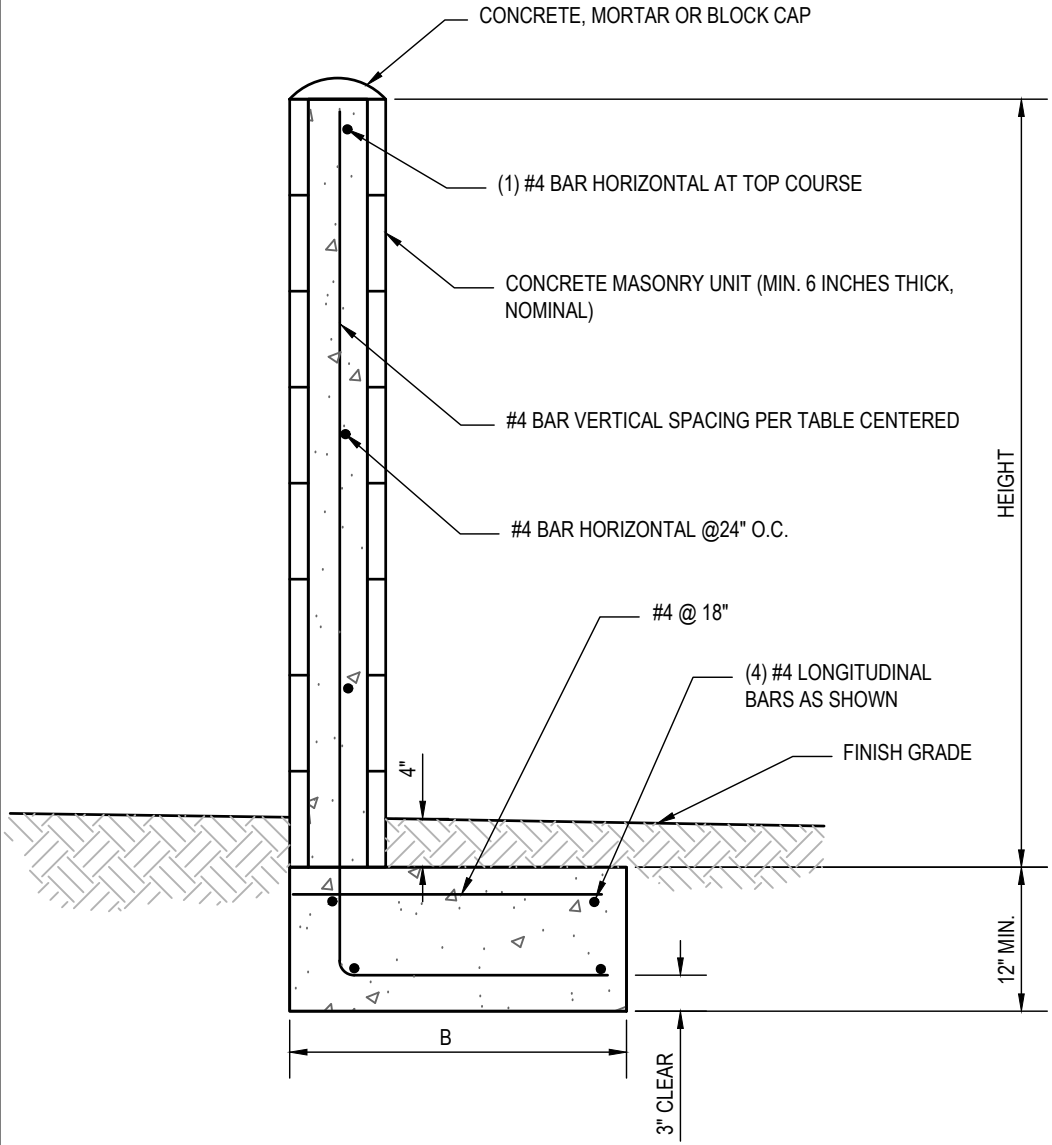


CONSTRUCTION NOTES:

1. DESIGN DOES NOT ALLOW FOR GRADE DIFFERENTIALS OF MORE THAN 6" ON OPPOSING SIDES OF THE WALL. THIS IS NOT A RETAINING WALL.
2. NO WATER COURSE OR NATURAL DRAINAGE SHALL BE OBSTRUCTED.
3. GROUT ALL CELLS.
4. ALL REBAR TO BE ASTM SPEC. A615, GRADE 40 MINIMUM.
5. ALL REBAR LAP SPLICES TO BE 24" MINIMUM
6. VERTICAL REBAR TO BE CENTERED IN MASONRY CELLS.
7. ALTERNATE DESIGNS MAY BE POSSIBLE WHEN PROVIDED WITH AN ENGINEERED ANALYSIS. USE OF THIS STANDARD DESIGN IS AT THE USERS RISK AND CARRIES NO IMPLIED OR INFERRED GUARANTEE AGAINST FAILURE OR DEFECTS.

MATERIAL SPECIFICATIONS:

A. CONCRETE MASONRY UNITS TO BE ASTM C-90 GRADE N
B. MORTAR TYPE S PER ASTM C-90
C. GROUT MIN. 2000 PSI PORTLAND CEMENT PER ASTM C-476

STEEL AND FOOTING TABLE		
HEIGHT	B	VERTICAL REINFORCING
6'-0" MAX.	42 INCHES	#4 @ 24 INCHES ON CENTER
4'-0" MAX.	30 INCHES	#4 @ 48 INCHES ON CENTER

CITY OF MONROVIA
PUBLIC WORKS DEPARTMENT

BLOCK WALL A
CANTILEVERED FOOTING

APPROVED

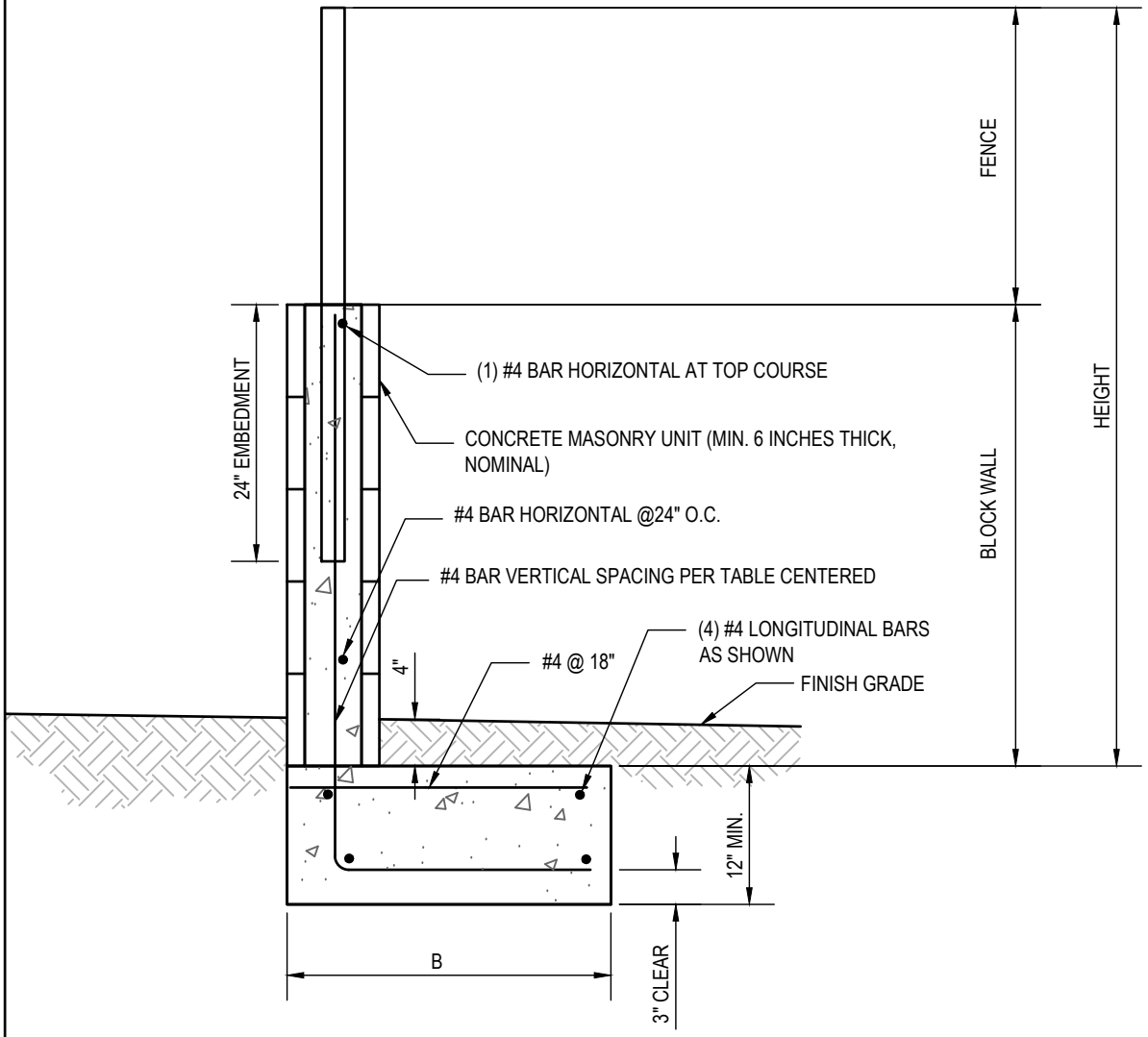
BRAD S. MERRELL - CITY ENGINEER

DATE: JUNE 2018

SCALE: NTS

DRAWN BY: SCOTT DUNCAN
DESIGNED BY: CARY PACKER
CHECKED BY: BRAD MERRELL

DRAWING NUMBER
1 OF 2



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MATERIAL SPECIFICATIONS:

A. CONCRETE MASONRY UNITS TO BE ASTM C-90 GRADE N
B. MORTAR TYPE S PER ASTM C-90
C. GROUT MIN. 2000 PSI PORTLAND CEMENT PER ASTM C-476

STEEL AND FOOTING TABLE		
HEIGHT	B	VERTICAL REINFORCING
6'-0" MAX.	42 INCHES	#4 @ 24 INCHES ON CENTER
4'-0" MAX.	30 INCHES	#4 @ 48 INCHES ON CENTER

CITY OF MONROVIA
PUBLIC WORKS DEPARTMENT

BLOCK WALL A W/ FENCE CANTILEVERED FOOTING

APPROVED

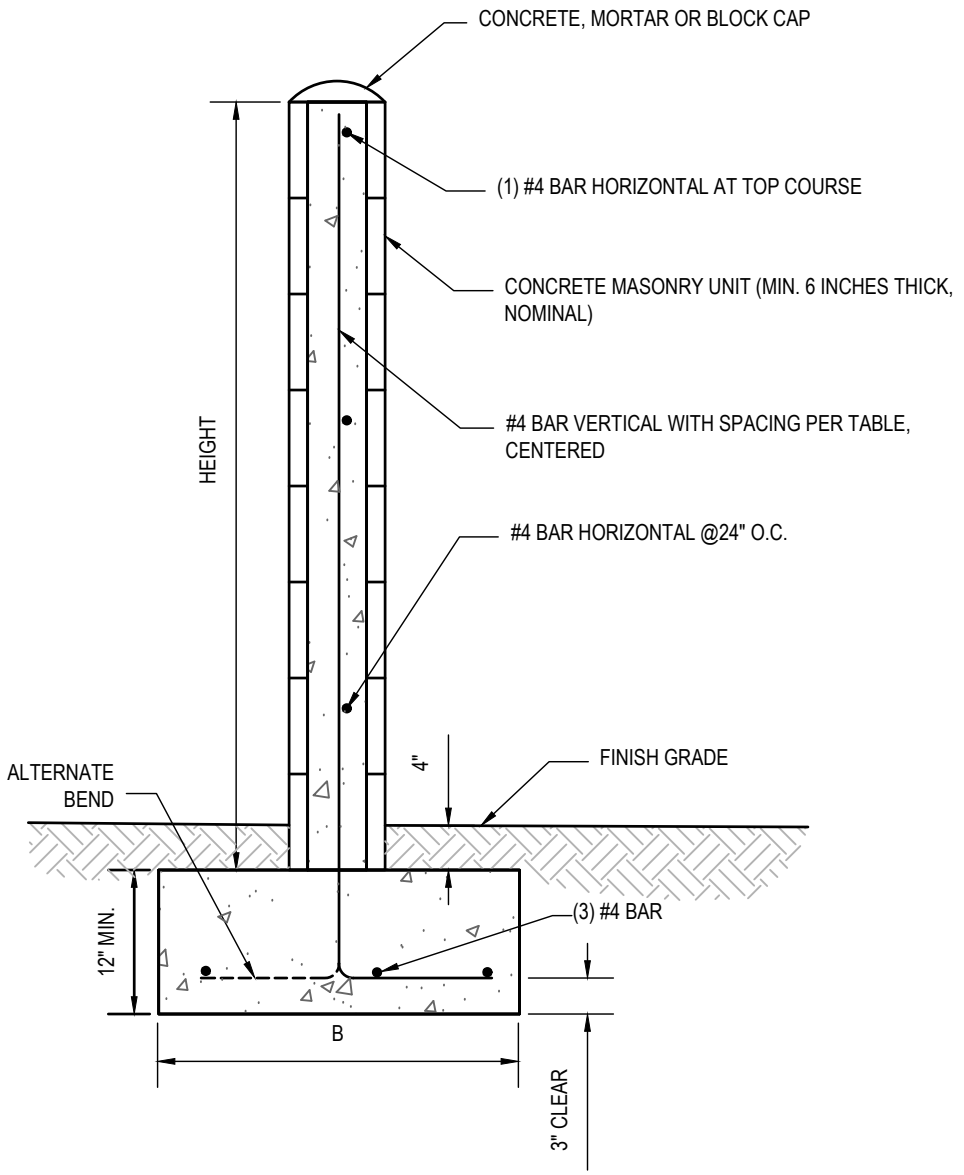
BRAD S. MERRELL - CITY ENGINEER

DATE: JUNE 2018

SCALE: NTS

DRAWN BY: SCOTT DUNCAN
DESIGNED BY: CARY PACKER
CHECKED BY: BRAD MERRELL

DRAWING NUMBER
2 OF 2



CONSTRUCTION NOTES:

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2. NO WATER COURSE OR NATURAL DRAINAGE SHALL BE OBSTRUCTED.
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5. ALL REBAR LAP SPLICES TO BE 24" MINIMUM
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MATERIAL SPECIFICATIONS:

A. CONCRETE MASONRY UNITS TO BE ASTM C-90 GRADE N
B. MORTAR TYPE S PER ASTM C-90
C. GROUT MIN. 2000 PSI PORTLAND CEMENT PER ASTM C-476

STEEL AND FOOTING TABLE		
HEIGHT	B	VERTICAL REINFORCING
6'-0" MAX	30 INCHES	#4 @ 24 INCHES ON CENTER
4'-0" MAX	21 INCHES	#4 @ 48 INCHES ON CENTER

CITY OF MONROVIA
PUBLIC WORKS DEPARTMENT

BLOCK WALL B
T - FOOTING

APPROVED

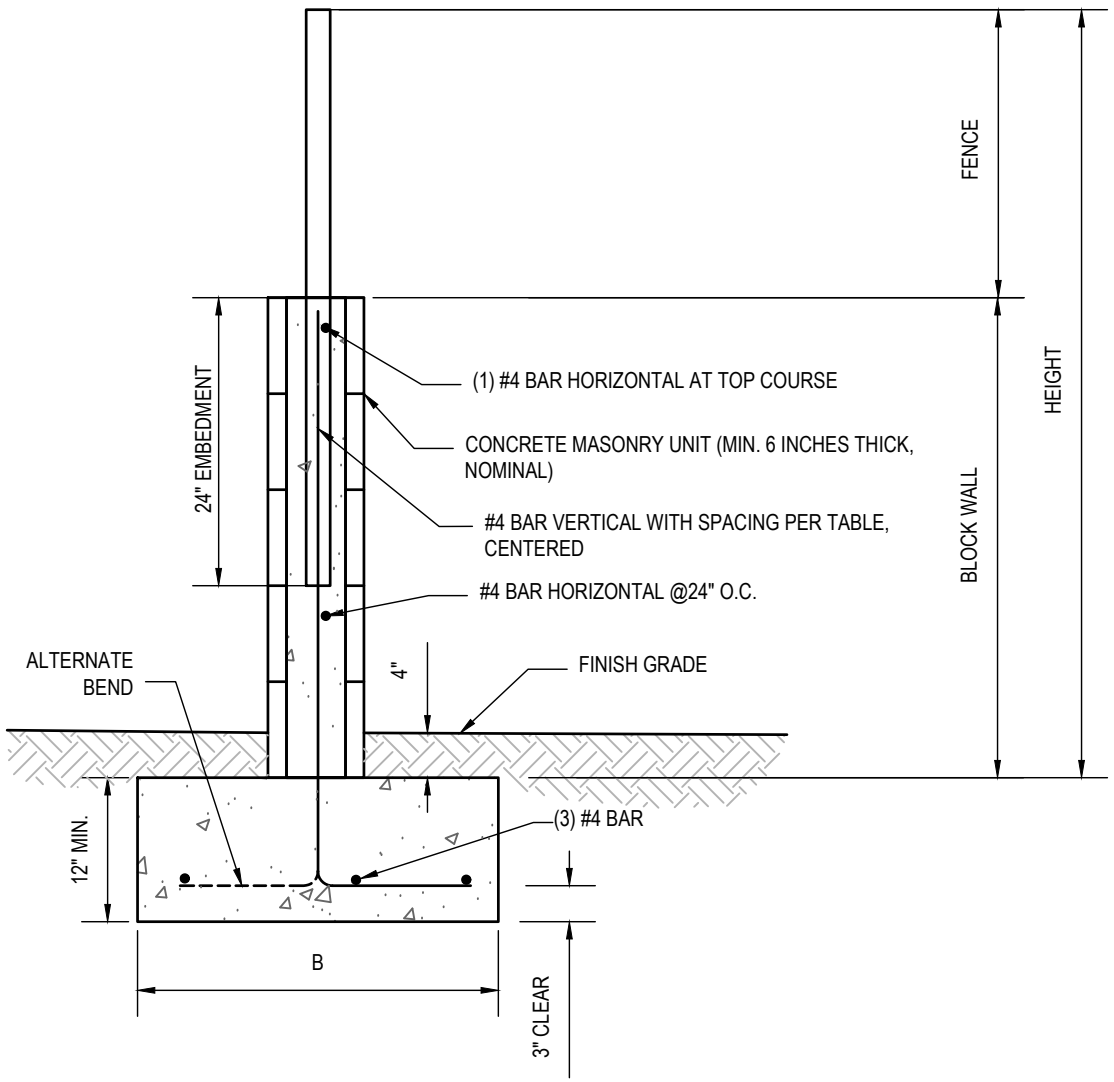
BRAD S. MERRELL - CITY ENGINEER

DATE: JUNE 2018

SCALE: NTS

DRAWN BY: SCOTT DUNCAN
DESIGNED BY: CARY PACKER
CHECKED BY: BRAD MERRELL

DRAWING NUMBER
1 OF 2



NOTES:

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2. NO WATER COURSE OR NATURAL DRAINAGE SHALL BE OBSTRUCTED.
3. GROUT ALL CELLS.
4. ALL REBAR TO BE ASTM SPEC. A615, GRADE 40 MINIMUM.
5. ALL REBAR LAP SPLICES TO BE 24" MINIMUM
6. VERTICAL REBAR TO BE CENTERED IN MASONRY CELLS.
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MATERIAL SPECIFICATIONS:

A. CONCRETE MASONRY UNITS TO BE ASTM C-90 GRADE N
B. MORTAR TYPE S PER ASTM C-90
C. GROUT MIN. 2000 PSI PORTLAND CEMENT PER ASTM C-476

STEEL AND FOOTING TABLE		
HEIGHT	B	VERTICAL REINFORCING
6'-0" MAX	30 INCHES	#4 @ 24 INCHES ON CENTER
4'-0" MAX	21 INCHES	#4 @ 48 INCHES ON CENTER

CITY OF MONROVIA
PUBLIC WORKS DEPARTMENT

BLOCK WALL B W/ FENCE
T - FOOTING

APPROVED

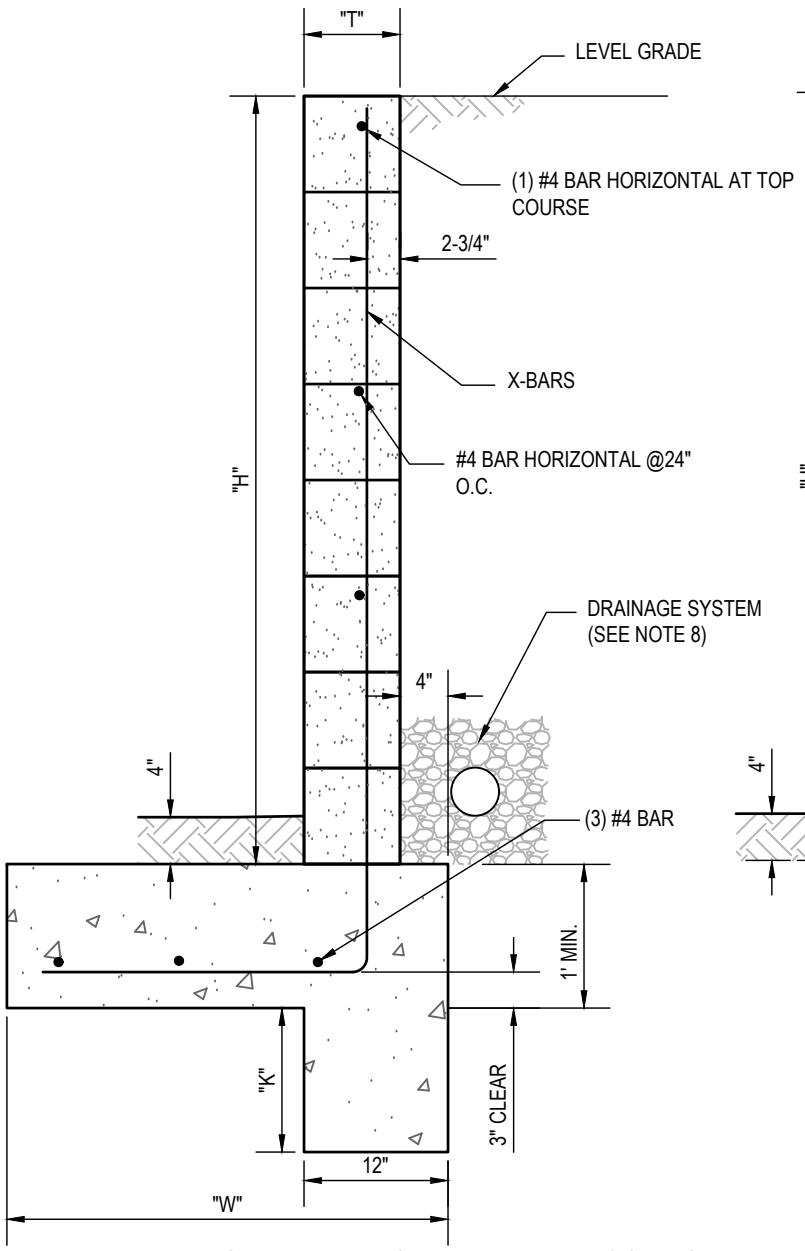
BRAD S. MERRELL - CITY ENGINEER

DATE: JUNE 2018

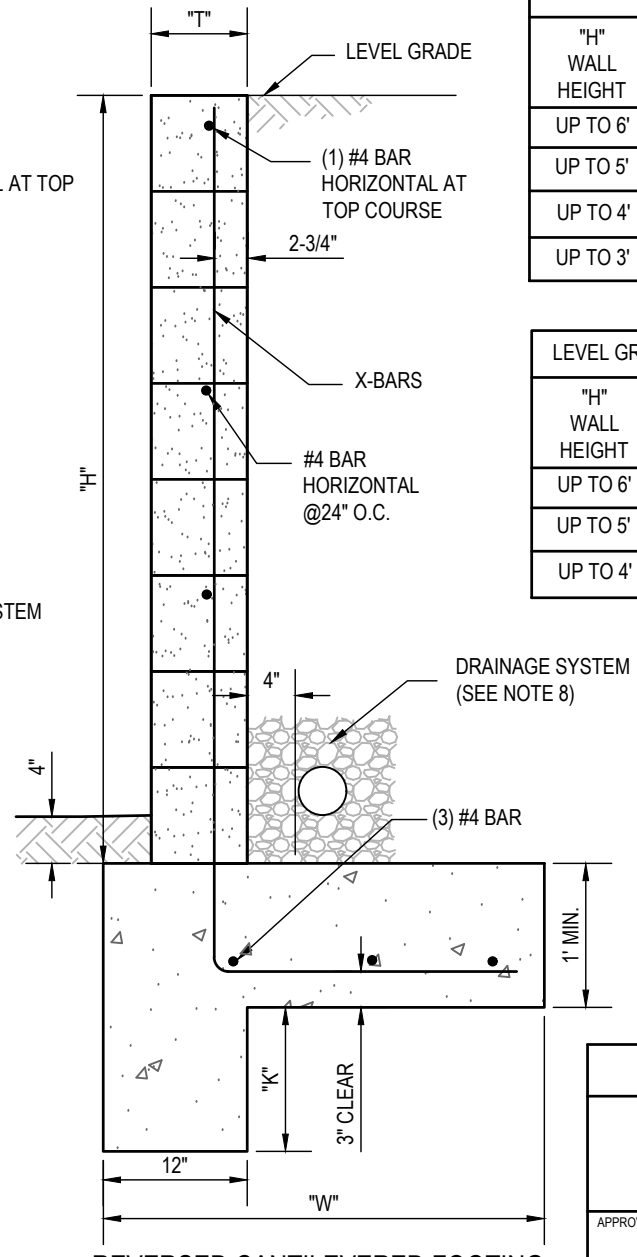
SCALE: NTS

DRAWN BY: SCOTT DUNCAN
DESIGNED BY: CARY PACKER
CHECKED BY: BRAD MERRELL

DRAWING NUMBER
2 OF 2



RETAINING WALL WITH CANTILEVERED FOOTING



REVERSED CANTILEVERED FOOTING

LEVEL GRADE AT TOP OF WALL				
"H" WALL HEIGHT	"T" BLOCK SIZE	"X" VERTICAL REBAR	"W" FOOTING WIDTH	"K" KEY DEPTH
UP TO 6'	8"	#4 @ 8"	4'-6"	14"
UP TO 5'	8"	#4 @ 16"	3'-6"	11"
UP TO 4'	8"	#4 @ 32"	3'-0"	7"
UP TO 3'	6"	#4 @ 32"	2'-6"	3"

LEVEL GRADE WITH FENCE (6' MAX.) SEE DETAIL NEXT SHEET				
"H" WALL HEIGHT	"T" BLOCK SIZE	"X" VERTICAL REBAR	"W" FOOTING WIDTH	"K" KEY DEPTH
UP TO 6'	8"	#4 @ 16"	3'-9"	10"
UP TO 5'	8"	#4 @ 24"	3'-6"	7"
UP TO 4'	8"	#4 @ 48"	3'-3"	NA

CITY OF MONROVIA
PUBLIC WORKS DEPARTMENT

RETAINING WALL A CANTILEVERED FOOTING

APPROVED

BRAD S. MERRELL - CITY ENGINEER

DATE: JUNE 2018

SCALE: NTS

DRAWN BY: SCOTT DUNCAN
DESIGNED BY: CARY PACKER
CHECKED BY: BRAD MERRELL

DRAWING NUMBER
1 OF 2

CONSTRUCTION NOTES:

1. MATERIAL SPECIFICATIONS:
A. CONCRETE MASONRY UNITS TO BE ASTM C-90 GRADE N
B. MORTAR TYPE M OR S
C. GROUT 2000 PSI PORTLAND CEMENT PER ASTM C-476

2. FOUNDATION CONCRETE COMPRESSIVE STRENGTH OF 2500 PSI

3. REINFORCING STEEL TO BE ASTM A615, GRADE 40. OVERLAP SPLICES SHALL 40 BAR DIAMETERS MINIMUM. ALL REBAR HOOKS SHALL BE A MINIMUM OF 12 TIMES THE REBAR DIAMETER.

4. ALL FOOTINGS ADJACENT TO SLOPES TO BE AT LEAST 5' TO DAYLIGHT

5. FOR LEVEL GRADE, ALL SURCHARGE LOADS SHALL BE KEPT BACK FROM THE WALL A DISTANCE EQUAL TO THE HEIGHT OF THE WALL. WALL IS NOT DESIGNED TO SUPPORT SURCHARGE LOADS FROM VEHICLES OR STRUCTURES.

6. GROUT ALL CELLS.

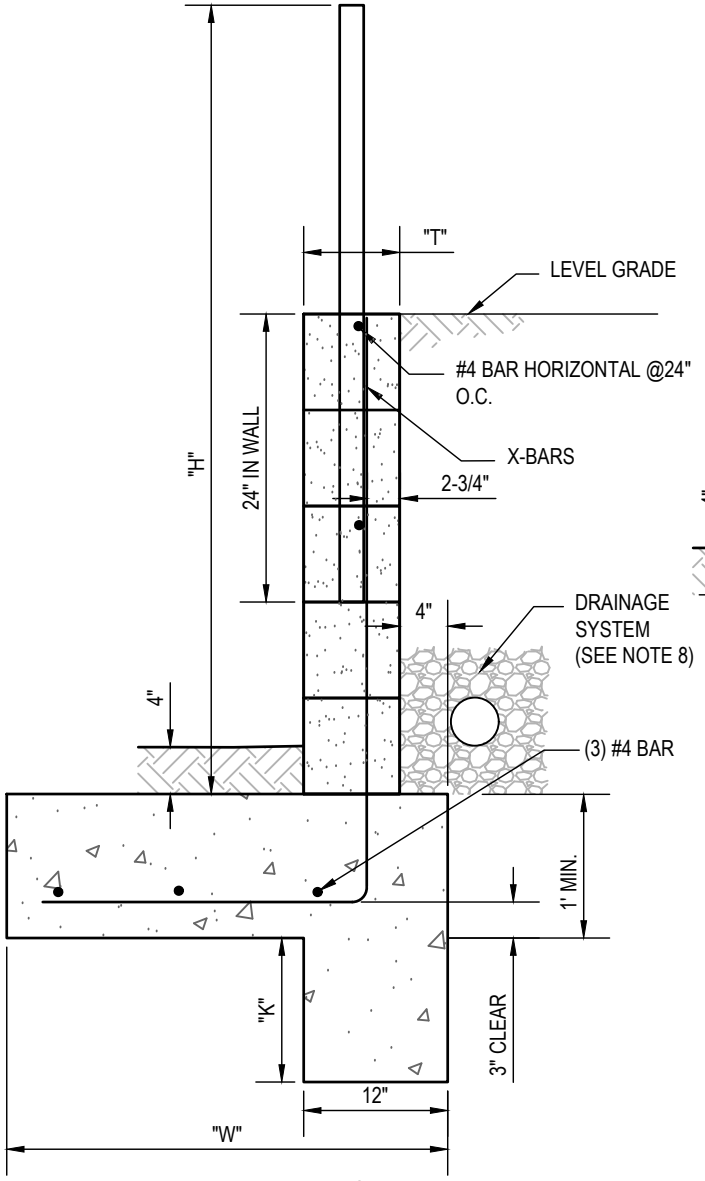
7. CLEANOUTS SHALL BE PROVIDED FOR ALL GROUT POURS OVER 5 FEET IN HEIGHT. WHEN REQUIRED CLEANOUTS SHALL BE PROVIDED IN THE BOTTOM COURSE AT EVERY VERTICAL BAR AND SHALL BE SEALED AFTER INSPECTION AND BEFORE GROUTING.

8. PROVIDE 1 CF/FT OF CLEAN COARSE GRAVEL WITH 1) 4" DIAMETER PERFORATED PIPE TO DRAIN OR 2) OMIT HEAD JOINTS IN THE FIRST COURSE.

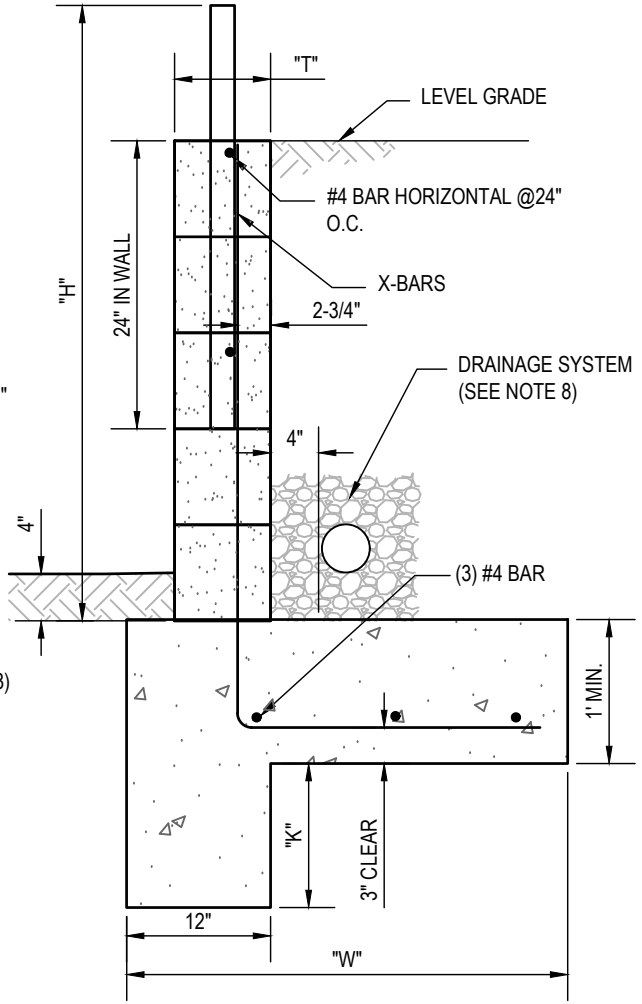
9. BACKFILL MAY BE PLACED AFTER THE WALL HAS CURED FOR 28 DAYS OR CONCRETE HAS REACHED FULL COMPRESSIVE STRENGTH AS SHOWN BY TESTING

10. FENCE OR GUARDRAIL MAY BE REQUIRED PER CBC SECTION 1013. FENCE/GUARDRAIL TO BE ATTACHED TO BLOCK WALL WITH METAL POST EMBEDDED 24" MINIMUM

11. ALTERNATE DESIGNS MAY BE POSSIBLE WHEN PROVIDED WITH AN ENGINEERED ANALYSIS. USE OF THIS STANDARD DESIGN IS AT THE USERS RISK AND CARRIES NO IMPLIED OR INFERRED GUARANTEE AGAINST FAILURE OR DEFECTS.



WALL WITH FENCE AND CANTILEVERED FOOTING DETAIL



REVERSED CANTILEVERED FOOTING

CITY OF MONROVIA
PUBLIC WORKS DEPARTMENT

RETAINING WALL A W/ FENCE CANTILEVERED FOOTING

APPROVED

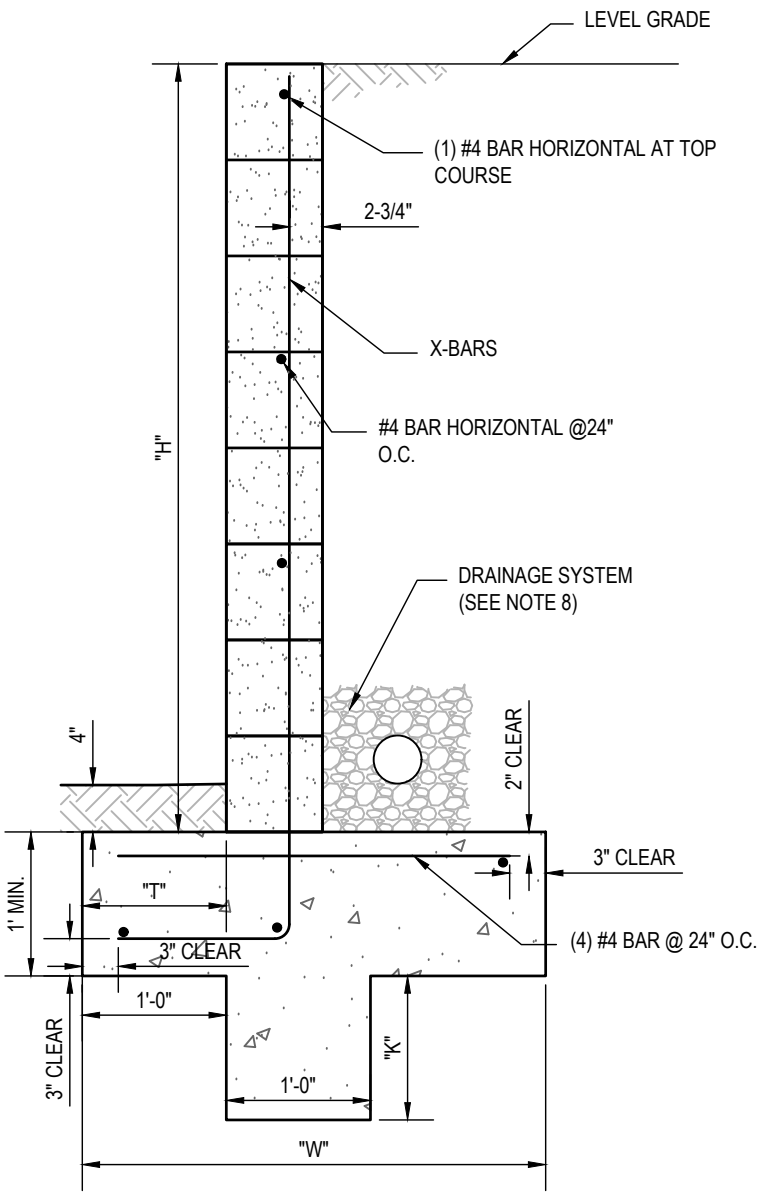
BRAD S. MERRELL - CITY ENGINEER

DATE: JUNE 2018

SCALE: NTS

DRAWN BY: SCOTT DUNCAN
DESIGNED BY: CARY PACKER
CHECKED BY: BRAD MERRELL

DRAWING NUMBER
2 OF 2



RETAINING WALL

LEVEL GRADE AT TOP OF WALL				
"H" WALL HEIGHT	"X" VERTICAL REBAR	"T" TOE WIDTH	"W" FOOTING WIDTH	"K" KEY DEPTH
UP TO 6'	#4 @ 8"	1'-0"	3'-9"	10"
UP TO 5'	#4 @ 16"	1'-0"	3'-0"	8"
UP TO 4'	#4 @ 32"	1'-0"	2'-3"	6"
UP TO 3'	#4 @ 32"	6"	2'-0"	N/R

LEVEL GRADE WITH FENCE (6' MAX.) SEE DETAIL NEXT SHEET				
"H" WALL HEIGHT	"X" VERTICAL REBAR	"T" TOE WIDTH	"W" FOOTING WIDTH	"K" KEY DEPTH
UP TO 6'	#4 @ 16"	1'-0"	3'-6"	7"
UP TO 5'	#4 @ 24"	1'-0"	3'-0"	5"
UP TO 4'	#4 @ 48"	1'-0"	2'-9"	N/A

CITY OF MONROVIA
PUBLIC WORKS DEPARTMENT

RETAINING WALL B

APPROVED

BRAD S. MERRELL - CITY ENGINEER

DATE: JUNE 2018

SCALE: NTS

DRAWN BY: SCOTT DUNCAN
DESIGNED BY: CARY PACKER
CHECKED BY: BRAD MERRELL

DRAWING NUMBER
1 OF 2

CONSTRUCTION NOTES:

1. MATERIAL SPECIFICATIONS:
A. CONCRETE MASONRY UNITS TO BE ASTM C-90 GRADE N
B. MORTAR TYPE M OR S
C. GROUT 2000 PSI PORTLAND CEMENT PER ASTM C-476

2. FOUNDATION CONCRETE COMPRESSIVE STRENGTH OF 2500 PSI

3. REINFORCING STEEL TO BE ASTM A615, GRADE 40. OVERLAP SPLICES SHALL 40 BAR DIAMETERS MINIMUM. ALL REBAR HOOKS SHALL BE A MINIMUM OF 12 TIMES THE REBAR DIAMETER.

4. ALL FOOTINGS ADJACENT TO SLOPES TO BE AT LEAST 5' TO DAYLIGHT

5. FOR LEVEL GRADE, ALL SURCHARGE LOADS SHALL BE KEPT BACK FROM THE WALL A DISTANCE EQUAL TO THE HEIGHT OF THE WALL. WALL IS NOT DESIGNED TO SUPPORT SURCHARGE LOADS FROM VEHICLES OR STRUCTURES.

6. GROUT ALL CELLS.

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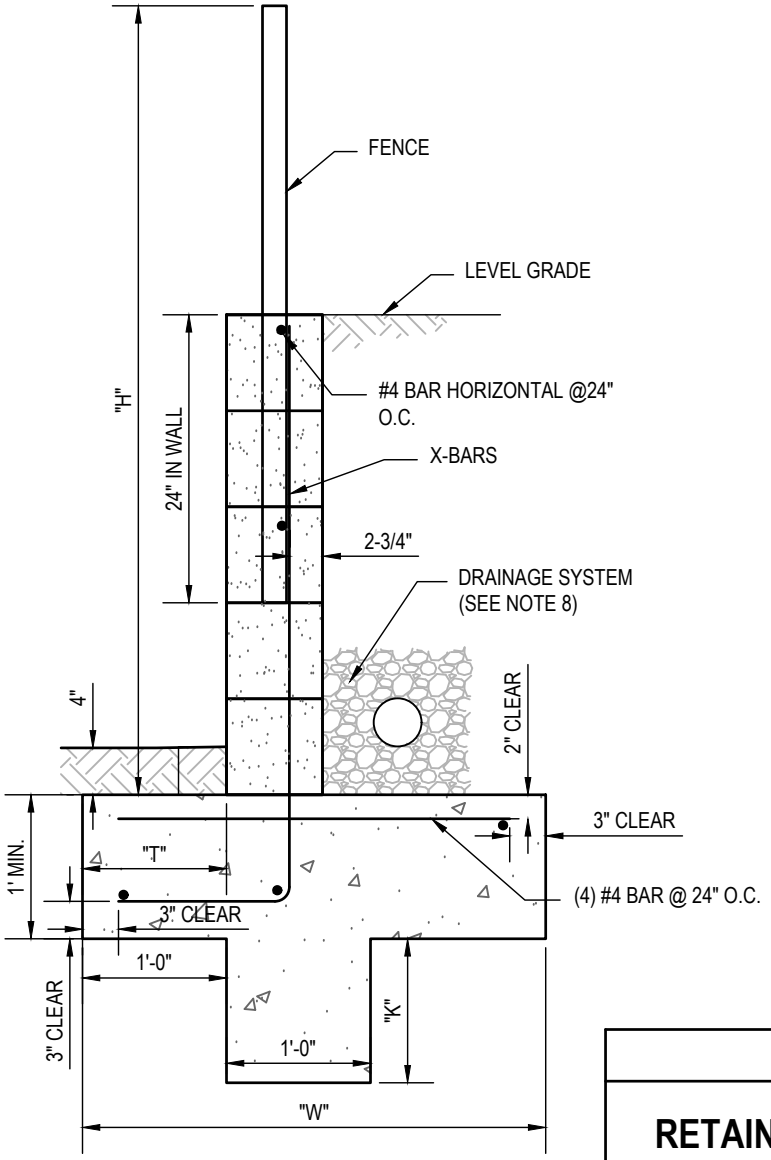
8. PROVIDE 1 CF/FT OF CLEAN COARSE GRAVEL WITH 1) 4" DIAMETER PERFORATED PIPE TO DRAIN OR 2) OMIT HEAD JOINTS IN THE FIRST COURSE.

9. BACKFILL MAY BE PLACED AFTER THE WALL HAS CURED FOR 28 DAYS OR CONCRETE HAS REACHED FULL COMPRESSIVE STRENGTH AS SHOWN BY TESTING

10. FENCE OR GUARDRAIL MAY BE REQUIRED PER CBC SECTION 1013. FENCE/GUARDRAIL TO BE ATTACHED TO BLOCK WALL WITH METAL POST EMBEDDED 24" MINIMUM

11. ALTERNATE DESIGNS MAY BE POSSIBLE WHEN PROVIDED WITH AN ENGINEERED ANALYSIS. USE OF THIS STANDARD DESIGN IS AT THE USERS RISK AND CARRIES NO IMPLIED OR INFERRED GUARANTEE AGAINST FAILURE OR DEFECTS.



WALL WITH FENCE

CITY OF MONROVIA
PUBLIC WORKS DEPARTMENT

RETAINING WALL B W/ FENCE

APPROVED
BRAD S. MERRELL - CITY ENGINEER

DATE: JUNE 2018
SCALE: NTS

DRAWN BY: SCOTT DUNCAN
DESIGNED BY: CARY PACKER
CHECKED BY: BRAD MERRELL

DRAWING NUMBER
2 OF 2